School Shop

vol. 1 no. 5
February, 1942

"V"-Training in England
by Robert W. Hambrook

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by August Flam

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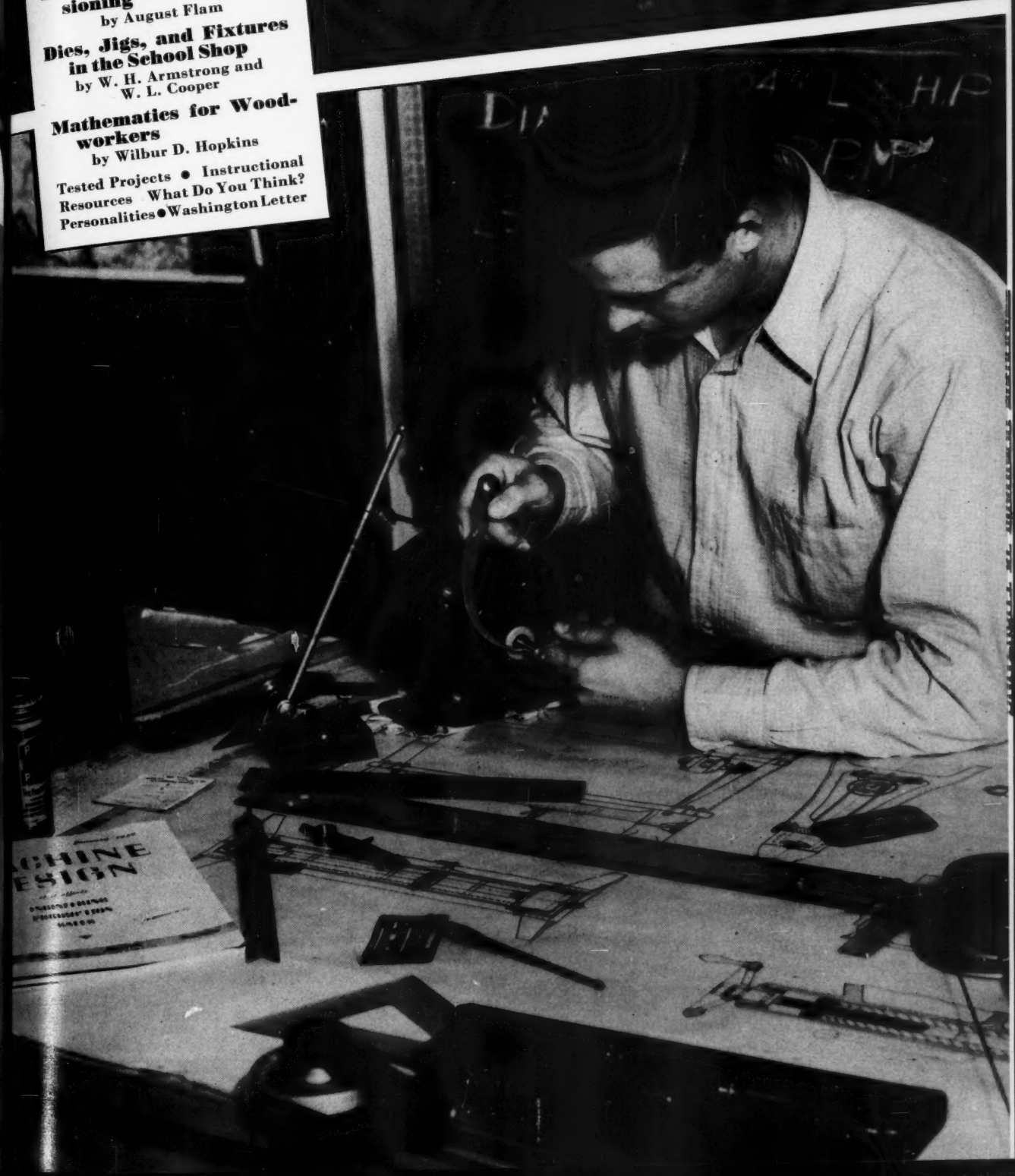
Mathematics for Woodworkers
by Wilbur D. Hopkins

Tested Projects • Instructional Resources What Do You Think? Personalities • Washington Letter



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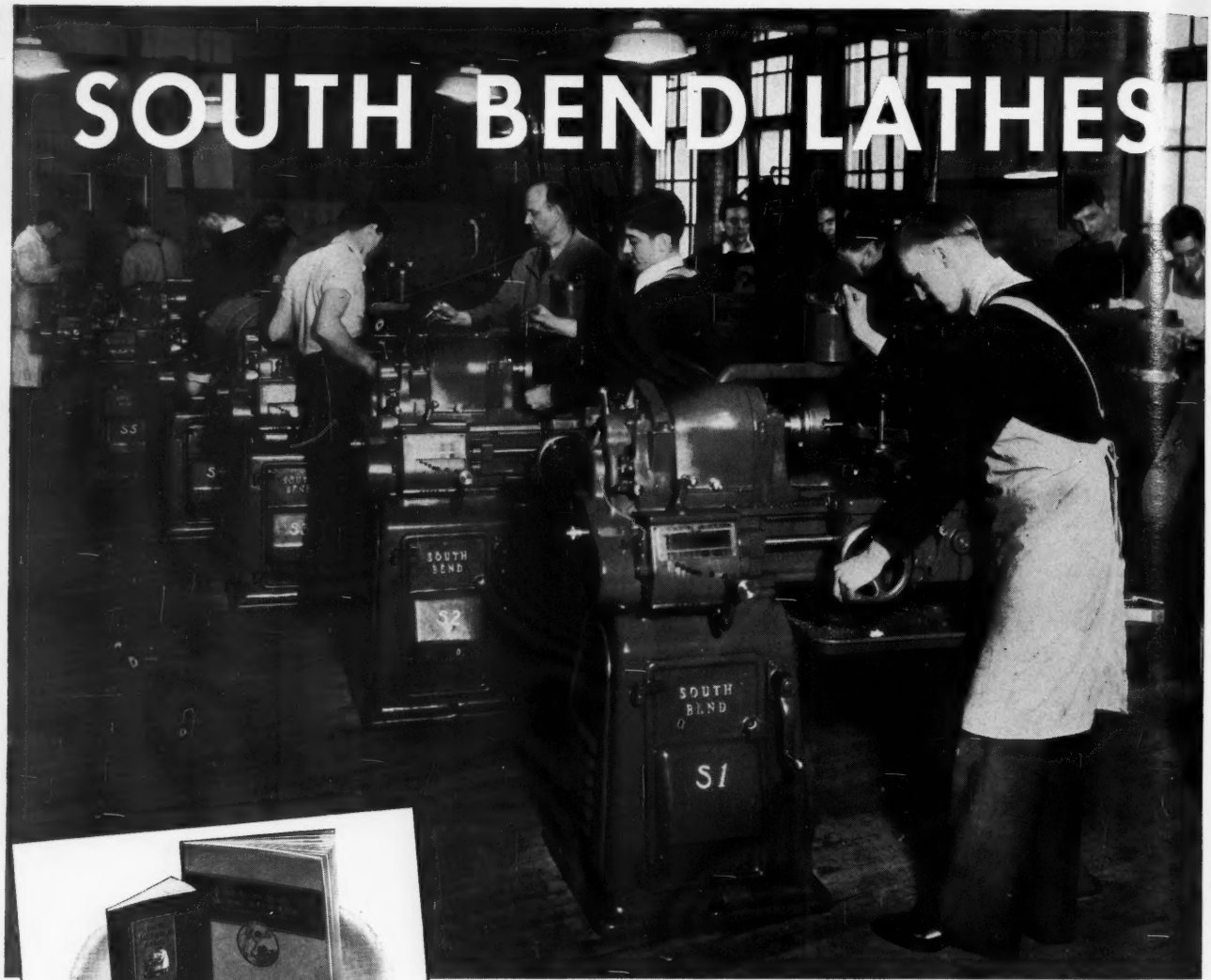

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School Shop

FOR INDUSTRIAL ARTS & VOCATIONAL EDUCATION TEACHERS

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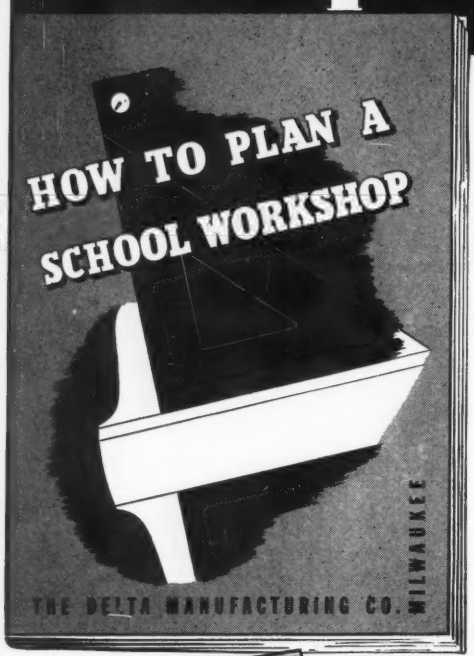

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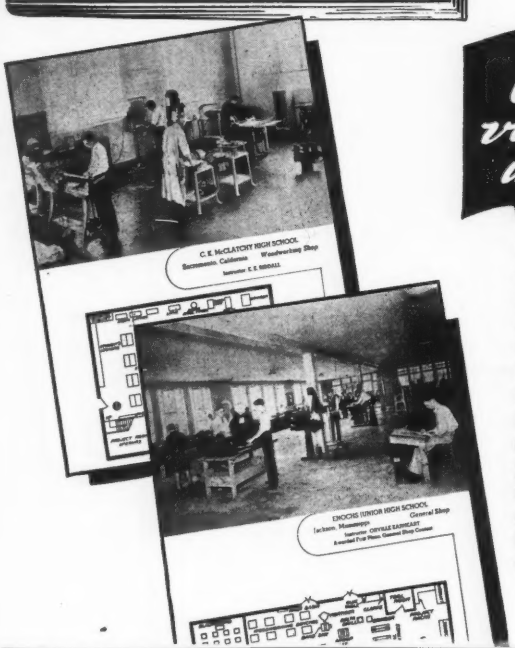

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"V"-Training in England

by **Robert W. Hambrook**

Here is a first-hand account of how England is carrying on her "defense-training" program. The author's findings have already had an important effect on training practices in the schools of this country. This description of the way Britain has increased her war effort may give some inkling of the trend our own program may take as we intensify our efforts. Robert W. Hambrook is a member of the Trade and Industrial Education Service Staff of the U. S. Office of Education, Washington, D. C.

A YEAR ago I went to England to study education, and especially industrial education, under war conditions. My mission was to make a full report to the U. S. Commissioner of Education on what I found.

The assignment was given me in view of the fact that we in this country might face conditions similar to those England was experiencing. The utility of this trip has since been borne out by some significant modifications in our own training program as a result of observations of the British problem.

The general mental attitude of the people in England toward the whole subject of war had much to do with the problems faced. The case was best put recently by Prime Minister Churchill in his speech before Congress. Germany and Japan, as Mr. Churchill pointed out, have during the last 20 years been training children to consider that war is essential and right, while the English-speaking people and others have brought up their youth to believe that war is nonessential and wrong. Germany and Japan have, therefore, put forth every effort in utilizing material, men, and mechanical devices to promote war efficiency. Consequently when war broke out it found Germany prepared to meet the situation both in manpower and in mechanized equipment. Recently it has been evident that Japan has followed the example of Germany even in the most minor detail.

On the other hand, Great Britain faced the war mostly unprepared. She found herself lacking in mechanical facilities and men trained for war efforts, both for the battlefront and for behind the lines.

Inasmuch as mechanized equipment is vital to present-day war effort, England found one of her first responsibilities was to prepare a list of exempted occupations covering persons essential to production of war material. Such a list involved difficulties, for the Army, Air Force, and Navy all require personnel possessing mechanical skill and because the Services and the war industries both need personnel with mechanical qualifications.

Because persons having all sorts of manual abilities have been called up either for war service or for war industries, it is now a problem to secure adequate services ordinarily easily secured during normal times. I had difficulty for instance in securing clothing and in purchasing shoes of quality. Even the putting on of rubber heels proved a problem and resulted in nails protruding into my heels. And this in London!

As one would expect, there was an immediate call for toolmakers and persons capable of setting up special machinery. In an emergency one would hardly attempt to make skilled toolmakers out of butchers, barbers, teachers, salesmen, shop clerks, accountants, and others representing a cross section of the population. In addition to toolmakers and toolsetters, skilled and qualified electricians were needed and, therefore no one suggested that a five-year apprenticeship would be of any value in meeting the present emergency.

Great Britain's technical and trade schools immediately responded to the needs of the situation and courses were modified or added in order to develop required knowledge and skill.

It was not, however, until after the Dunkirk retreat that the British people as a whole realized the need for concentrated all-out effort. Germany either was unable to follow up her advantage or did not realize her opportunity, for the British Army left all its supplies and equipment across the channel and arrived in England with scarcely a rifle. It is significant that in this classic retreat, made necessary by the fall of her Allies, the British Government transported over to England many thousands of Allied soldiers in addition to her own.

With her supplies and equipment gone, all technical and trade schools and even secondary and elementary schools having machinery were utilized to produce various types of war material, including such pertinent items as jigs and gauges. Teachers and students alike produced significant items for war use. Elementary teachers who could not be evacuated to country areas with students because these country schools had no equipment for manual arts were given additional training and set to work in trade schools producing required material. Although many of these manual arts teachers had had no definite trade experience and, therefore, were not trade skilled, they very effectively produced war materials.

During the most of the depression period the Ministry of Labor secured funds from the government and set up schools in various sections of the country equipped to train persons on a semi-skilled basis. Labor gave its consent on the condition that the persons so trained should not take the places of skilled toolmakers, machinists, instrument makers, and others of similar type. One can see the difficulty of holding an individual in special classes for a period of from 11 to 12 months on the assumption that he could remain a semi-skilled individual. By concentrating on a single phase of an industry such, perhaps, as shaping, grinding, milling, or lathe work a person became, at the end of a year, an operator far superior in skill to the average.

While in England I visited several of these labor-training centers. There were 42 when I arrived and 63 when I left in June. These schools were completely equipped with modern machinery and other facilities.

It may seem strange to some that England still carries on her apprenticeship program in most industries. I was informed that the reason for continuing apprenticeship programs now is that insufficient attention was given to this matter during the last war and consequently England found herself short of adequate skilled personnel. In essential industries, apprentices working under training conditions are exempt from military service.

Britain has a unique philosophy of apprenticeship. It cannot be said that this philosophy is universally practiced throughout the country, but in general such associations as the Institute of Mechanical Engineers, the Royal Aeronautical Society, and others maintain arrangements with the Board of Education so that apprentices carry on

British women being trained to use calipers.

courses of study prescribed by the association for a period of five years. The five-year period is divided into two parts, consisting of a three-year junior period and a two-year senior or advanced period. At the conclusion of the three-year period the student receives recognition. Should his standard of attainment in the plant and in the school warrant it, he is allowed to continue for the final two years.

At the end of this apprenticeship time his attainment is recognized by a certificate cosigned by representatives of the school board and an association. He is then informed that he may report to the association after a period of five years. Should he, during the five years of post-apprenticeship employment, succeed in the industry and accomplish outstanding work, he may then report to the association and his success be recognized by being allowed to become a member of the association. He can then place behind his name such letters as M.I.M.E., indicating that he is a member of the Institute of Mechanical Engineers, or such letters as M.R.A.S., which means that he is a member of the Royal Aeronautical Society, the recognized association of outstanding people in the field. So far as he is concerned, he has maintained scholarship standards and accomplishment standards equivalent to a degree in his field.

Only those acquainted with the English industries can realize the significance of apprenticeship based on these fundamentals. It means that individuals have secured technical information and theory comparable to that provided in an engineering institution, but at the same time he has had 10 years of employment in industry ranging from elementary types of work into a supervisory position. The war industries in England today appear to be well manned by skilled personnel who have passed through apprenticeship programs. Those who fell by the way may now be the mechanics at the bench or at the machine.

A significant problem facing England is that of securing adequately trained trade teachers. This appeared evident everywhere except in the recognized technical schools where teaching staffs have proved their effectiveness through the years. Ordinarily the English technical schools are manned by individuals who perhaps have asked if they might teach on a voluntary basis in a local technical school in extension classes. Sometimes these voluntary services are accepted whereas in other cases the individual is paid a recognized salary. At the end of a winter session the individual has shown that he either has teaching ability or not according to the state of his class as regards enrolment and satisfaction on the part of students. He may then, on the basis of this preliminary successful teaching experience, be appointed to a position requiring full-time work.

However, the matter of teaching by a skilled toolmaker or electrician provides a problem not easily solved, for the most skilled individual often lacks practically every ability and personal qualification essential to successful instruction. As far as I understood, no universal systematized program was under way for making teachers out of toolmakers and other skilled persons. In one of the Royal Air Force Training Stations I witnessed a teacher-training program which to me was significant. The instructors had been selected from three sources: industry, the regular Royal Air Force, and the Royal Air Force Training Programs. In the last case, the individual had to show outstanding ability in all phases of the training program. Inasmuch as teachers were required for specific phases of the Royal Air Force training efforts, these individuals were given subject-matter training covering about three phases of the work so that by concentration on these units the individual became proficient in limited fields. This, of course, required no training in analysis of subject matter.

Classes were small, limited, as I recall, to from five to six persons. The members of these classes were taught the fundamentals of presentation of lessons and were given training in the use of the voice, in proper enunciation, and in blackboard presentation, including sketching and lettering. This type of teacher training no doubt accounted in a great measure for the efficiency of the Royal Air Force mechanics training program.

The greatest part of the training program to meet the defense industrial needs in England consists of training for minor units of skilled work. I saw, for instance, one case where a model in wood had been made of the finished product. This, of course, was made from blueprints and had been broken down into very limited units. On the basis of the blueprints and the wood model, the whole production problem had been analyzed. The production of this actual job was broken down into 72 different items, each of which might be done by a person of limited skill. In the plant where I saw the important product being machined, all the work, including planing, shaping, drilling, milling, and internal threading, was done by girls who had received some basic training in the use of micrometers, vernier gauges, and vital shop practices, and who had come on the job to do in an efficient manner specific parts of this work.

The only place where I saw men assisting these girls was in bolting down the rough block on large planers. From then on each item was done solely by girls.

This same system of breaking down into small units has been carried out in industries throughout England in order to make use of personnel from every rank of life. I was in an aircraft factory where aircraft were being repaired. The entire section devoted to repair of tail surfaces was in charge of a man who had in civilian life been a butcher. Not a single person in this division had formerly worked in an aircraft factory. They had come from restaurants, stores, business concerns, and almost everywhere except factories.

England's industries during wartime amazed me because of their efficiency and the quality of their products.

. . . *The Cover*

The student on the front cover is a member of the machine drafting classes of Fremont High School, Los Angeles, Calif. Photograph is by courtesy of the Los Angeles Public Schools.

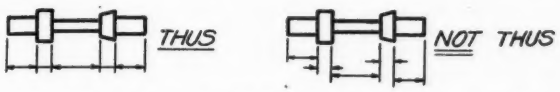
Yes and No in Dimensioning

by **AUGUST FLAM**

Head, Industrial Arts Department, John Marshall High School, Los Angeles, California

1. The same dimensions should not be repeated on the several views of an object, unless there is a special reason for it.

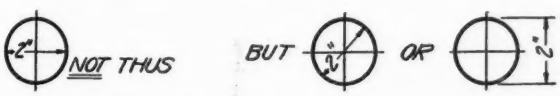
2. A number of dimensions in a row should not be staggered.



3. Dimensions should be placed between two views, as a rule.

4. The overall (total length, depth, or width) should be set out in a prominent position, where it may be easily found.

5. The horizontal or vertical center line should never be used as a dimension line.



6. A line of the drawing should not be used as a dimension line.

7. The diameter of a circle should be given, not the radius.

8. The radius of an arc should be given, not the diameter.

9. Dimensions up to 24 inches should be given in inches; dimensions 24 inches and over should be given in feet and inches:

$23\frac{7}{8}''$, 2'-0", 2'-$7\frac{3}{4}''$

10. If a dimension comes in feet, plus a fraction of an inch, without a whole number, the dimension is given as follows:

2'-$0\frac{7}{8}''$, 4'-$0\frac{1}{32}''$

11. The size of a drilled hole should be placed where the hole shows as a circle, rather than on a view where it shows as a pair of full or dotted straight lines.

12. Dimensions should be given from center lines.

13. Dimensions should read from the bottom of the sheet.

14. Dimensions should read from the right side of the sheet.

15. The line separating the numerator from the denominator of a fraction should be a horizontal line:

$\frac{3}{4}''$ NOT THUS BUT $\frac{3}{4}''$ THUS

16. The line separating the numerator from the denominator of a fraction must not be touched by either figure.

$\frac{3}{4}''$ NOT THUS BUT $\frac{3}{4}''$ THUS

17. Dimension lines are always to be drawn parallel to the measurements to be dimensioned.

18. No letter or figure on a drawing should be less than 1/8" high.

19. Arrowheads at the ends of dimension lines should always point in opposite directions.

20. Dimensions should be given from finished or machined surfaces, when there are such surfaces on the object.

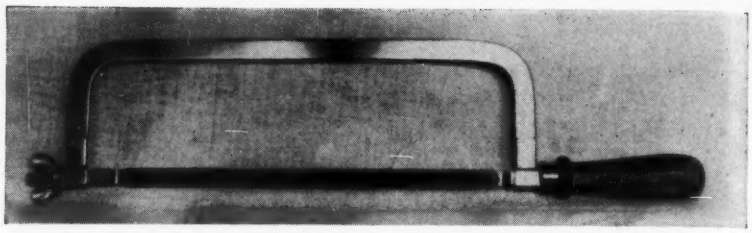
The above material has been specially prepared so that it may be cut out and posted on drawing room bulletin boards.

● The expansion of the school curriculum and the possible extension of educational opportunities call for guidance in the making of important choices. Moreover, the occupational pattern of the country is becoming increasingly complex. Our nomad population is a living example of maladjustment and waste. The relief rolls have shown again and again that many have chosen their life occupations by accident or under the influence of pressures that they did not know how to meet.

In the area of vocational choices and preparation, the school frequently has been deficient. Secondary schools still maintain the academic tradition and prepare too many youth for professional careers where the number of opportunities is limited. There are many semiskilled and semiprofessional tasks toward which the interests of high-school and junior-college students should be turned. While the occupational pattern is too complicated to expect high schools to prepare every graduate for a specific job, there is much still to be done to help each individual discover his own abilities, limitations, and the possibilities of various vocational fields. These demands cannot be met exclusively by the schools. Once again industry, labor, public employment agencies, and schools, as has been ably demonstrated in some of the larger cities, must join hands in providing the necessary information and opportunities for youth. —*Research Bulletin of the National Education Association.*

Project of the Month:

Dies, Jigs, *and* Fixtures *in the* School Shop



● *by* W. H. ARMSTRONG and W. L. COOPER

This is a description of a simple application of dies, jigs, and fixtures, an aspect of shop work seldom taught but important for an understanding of industrial and manipulative processes. The editor can testify that the finished project is a good, workmanlike job as he has one of these hacksaws in his home shop, courtesy of the authors. This project was developed when the authors were teachers in the Monessen, Penna., Vocational Schools. William L. Cooper is now Director of Industrial Education, Midland, Penna., High School and W. H. Armstrong is a member of the faculty of Pennsylvania State College, State College, Penna.

THE use of dies, jigs, and fixtures, as an aid in producing certain parts in school shops, is not taken advantage of by many teachers. Tools of this kind are not used as extensively as they should be because:

1. Some teachers appear to be opposed to using special tools that tend to minimize or standardize the work of students.
2. Teachers think of these devices as production tools, and overlook their utility to perform operations that would be difficult or impossible without their help.
3. They neglect an opportunity to instruct students in the use of special tools.
4. They believe that tools of this kind need to be elaborate and are difficult to make.
5. They lack presses on which to use dies.

It is true that the work of the school shop should be individualized in order that the boy may develop his abilities. If all the work in schools were made with dies, jigs, and fixtures, the student would go through a series of operations without much learning going on. However, there are certain parts of most projects that are difficult to produce by hand; and, at the same time, the making of them offers little in the way of learning. Such parts, on which the student spends so much time, yet learns so little, are ideal parts to make with the help of a special tool.

Two parts of this nature are the guides and the back for a hacksaw frame, shown in Figure 1. Both of these parts offer few learning opportunities, yet they are difficult for the student to produce with a presentable appearance. In hand forming the guide, for example, the student is confronted with the problem of getting square, clean-cut corners, accurate sizes, and a finished product that is not rough and battered. The back must be formed to specifications, with all parts lying in the same plane.

The two dies, illustrated in Figures 2 and 3, which are employed to form the guides, are simple to construct and use. The only machines necessary for making them are a drill press, and shaper or milling machine. The flat stock has the two upper corners formed first. These are short bends, and are the hardest to make because it is necessary to draw the material, but they form up well in the dies. The dies for this operation should have combination stop and guide pins (not shown in the illustration) in each end, and the pins should be of different diameters so that the dies cannot be assembled incorrectly.

The die for the second bend is as simple as the first. It has two removable side plates which act as a guide for the punch; and is made so that the stock, with the first bend completed, is held in

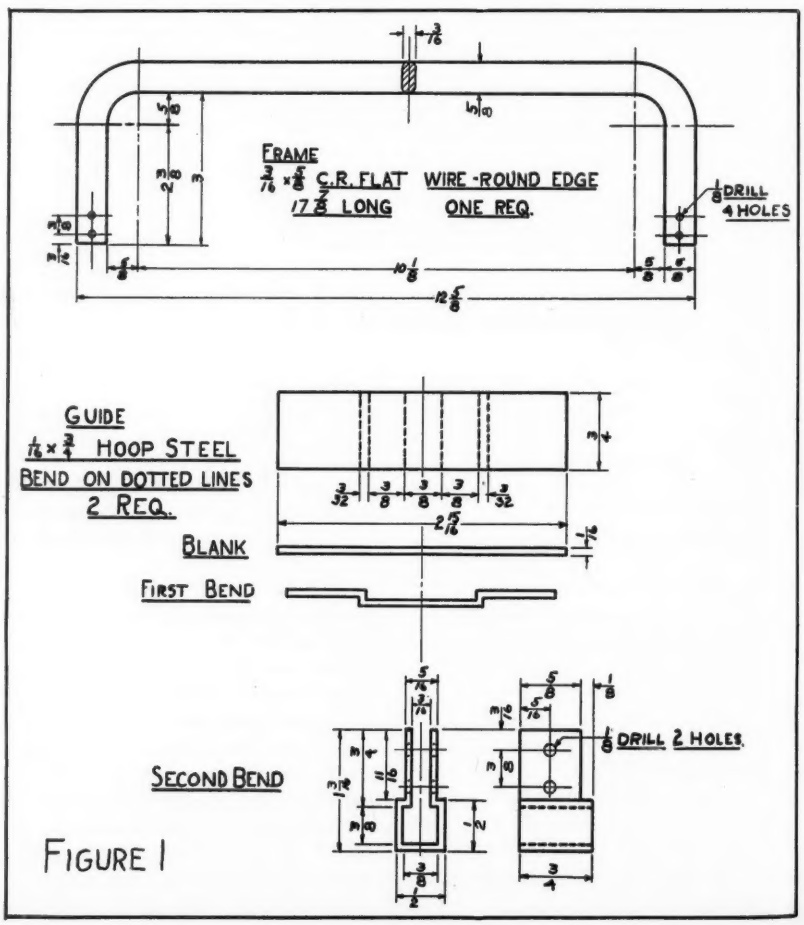


FIGURE 1

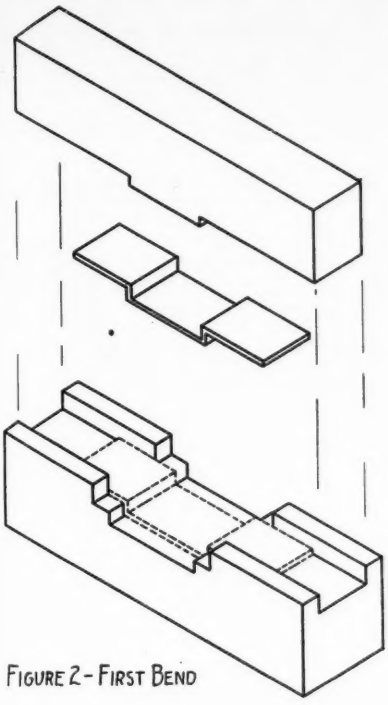


FIGURE 2 - FIRST BEND

position for the second operation as shown in Figure 3*a*. The two-part punch for this die is of the same size as the square pin which fits in the guide in the assembled hacksaw. Movement of the material in this die is shown in Figures 3*b* and 3*c*.

Dies of this type, made of case-hardened machinery steel, have been in use for the past five years. Although they have produced, on the average, 60 sets of guides per year, they are still in excellent condition.

The only precaution necessary in making these dies is to provide sufficient clearance to allow the material to move, and to round the corners enough so that the stock will not shear.

A small screw press, with a 1⅜" diameter, 6-pitch square thread screw, gives sufficient force for forming this part. Although the speed is slow, this is not objectionable, and there is no danger in its operation.

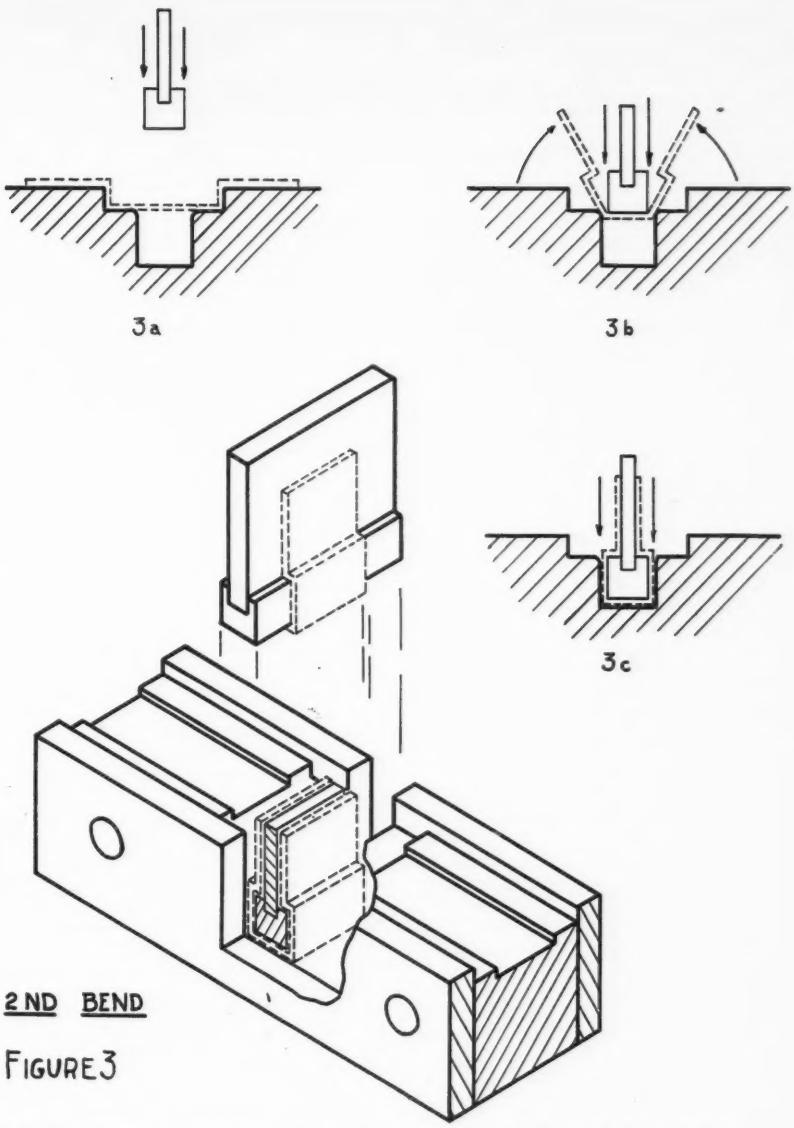
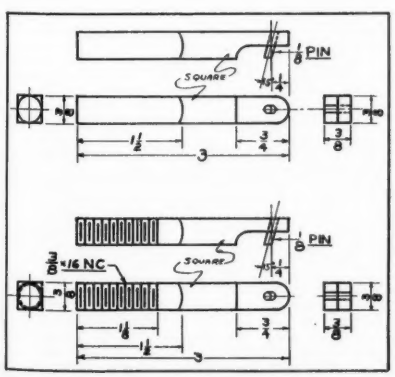


FIGURE 3

The bending jig for the frame, Figure 4, has a length of angle iron for its base. Two plugs, equal in radius to that of the bends in the frame, are bolted to one leg of the angle iron at the proper center distance. A stop, riveted to the angle iron, is used to locate the stock in the correct position. By heating the end to be bent, the stock is easily formed to shape. The use of these tools helps the



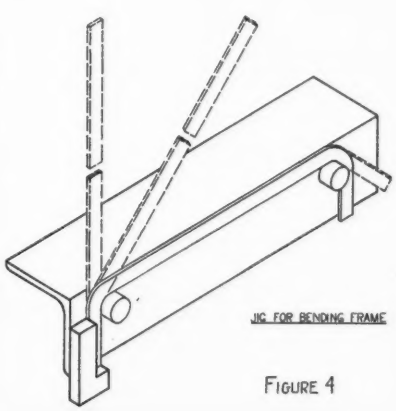


FIGURE 4

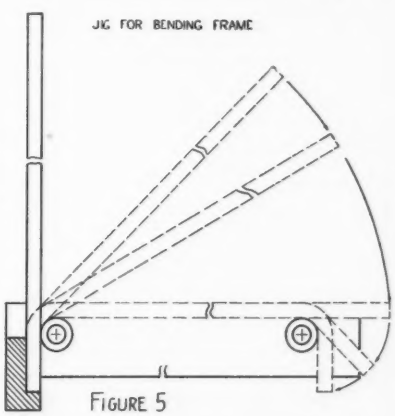


FIGURE 5

Industrial Arts Education
at the San Francisco Convention

INDUSTRIAL ARTS education will receive attention at the American Association of School Administrators San Francisco convention, February 23 and 24, through two significant conferences planned by the American Industrial Arts Association.

West Coast leaders in industrial arts will be the main participants in the two sessions, the first on leadership problems, and the second on curriculum problems in industrial arts education.

Presiding at the first session, devoted to "Leadership Problems in Industrial Arts Education: Research, Administrative, Associational, and the Example of a Federal Program," will be Professor Marion T. Weatherford of San Jose, Calif., State College. Participating in the discussion will be Dr. Edwin A. Lee, Dean of Education, University of California at Los Angeles; Dr. Lynn C. Monroe, Professor of Industrial Arts Education, Santa Barbara, Calif., State College; Dr. Louis V. Newkirk, President of the AIAA and Director of Industrial Arts, Chicago schools; and R. L. Schwanzle, Regional Director of Shop Work, NYA, Denver, Colo. Dr. A. D. Graves, Deputy Superintendent of Schools, San Francisco, will summarize and comment on the discussion.

The second session, on "Industrial Arts Curriculum Problems: Elementary and Secondary Levels," will be presided over by A. R. Nichols, Principal of San Jose, Calif., Technical High School. Dr. Newkirk of Chicago will make the keynote address. The panel discussion to follow will include as speakers: Will Matthews, Director of Industrial Arts, Oakland, Calif., schools; Prof. Russell B. Kidder, Director, Department of Industrial Arts Education, Chico, Calif., State College; Warren P. Dayton, Director of Industrial Arts, Sacramento, Calif., schools; and O. B. Badger, Director of Industrial Arts, Portland, Oregon, schools. Summarizing the conference will be Dr. George C. Jensen, Assistant Superintendent of Schools, Sacramento.

Industrial arts teachers are encouraged to attend these sessions of the AIAA by those in charge of the meetings—especially since S. D. Shankland, Secretary of the Association of School Administrators, has confirmed the holding of the convention, war or no war.

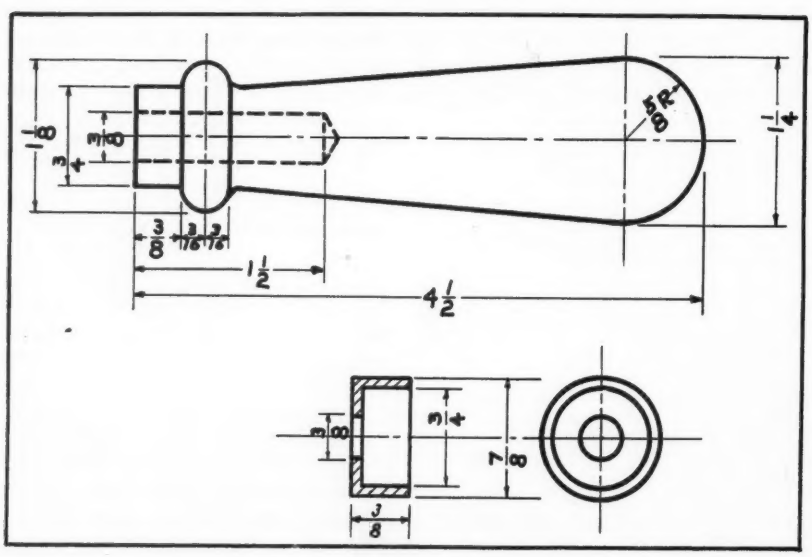
•

FEATURE of interest to industrial arts teachers is a fellowship banquet of Rho chapter Epsilon Pi Tau, being held in conjunction with the American Association of School Administrators convention. The banquet, for members and friends, is to be held Saturday, February 21, at the St. Francis Hotel, fraternity headquarters during the convention.

Robert J. Stoffer, Principal of the San Francisco Continuation School, will preside, and Dr. Benjamin E. Mallary, Professor of Education, University of California, Berkeley, is the speaker. He will speak on "The Guidance Value of the Industrial Arts Program."

All industrial arts teachers are invited to the banquet, which will be followed by a reception in honor of Dr. Mallary and the fraternity officers.

student over difficult obstacles; he is enabled to turn out a product that approaches, or is equal to, a commercial article in construction and appearance, and he gets some understanding of the application of special tools.



True-False Test in Mechanical Drawing

• *by* **SEATON H. SMITH**

The author teaches mechanical drawing in the Bend, Oregon, Junior and Senior High Schools.

Name _____

Date_____ Hour_____ Class_____

Directions: Read each question carefully and answer by "yes" or "no" in space provided.

Example: Is the T-square made for driving thumb tacks? (no)

1. Is it proper to use the triangular scale as a straight edge when drawing lines? (____)
2. Does the draftsman use the 6H pencil for layout work? (____)
3. Are all measurements of length on a drawing made with the triangles? (____)
4. Is it necessary to have a horizontal and a vertical line to obtain an angle of 90 degrees? (____)
5. Should the dividers be used to step off distances? (____)
6. Does a right angle have 90 degrees? (____)
7. Is the angle 90 degrees that is formed by the head and blade of a T-square? (____)
8. Should a 6H pencil be used for lettering? (____)
9. Should such letters as *W* and *A* be placed closer together than straight-line letters such as *L* and *I*? (____)
10. Is the single stroke Gothic letter used in drawing? (____)
11. Should a 6H pencil be used to draw letter guide lines? (____)
12. Is a drawing board made of hard wood? (____)
13. Is an eraser better than the knife blade for erasing ink lines? (____)
14. Should art gum be used to clean the triangular scale? (____)
15. Does mechanical drawing tend to develop the power of visualization? (____)
16. Should the 5H pencil be used to draw a border line? (____)
17. Is it correct in mechanical drawing to represent feet and inches thus: 1'-6"? (____)

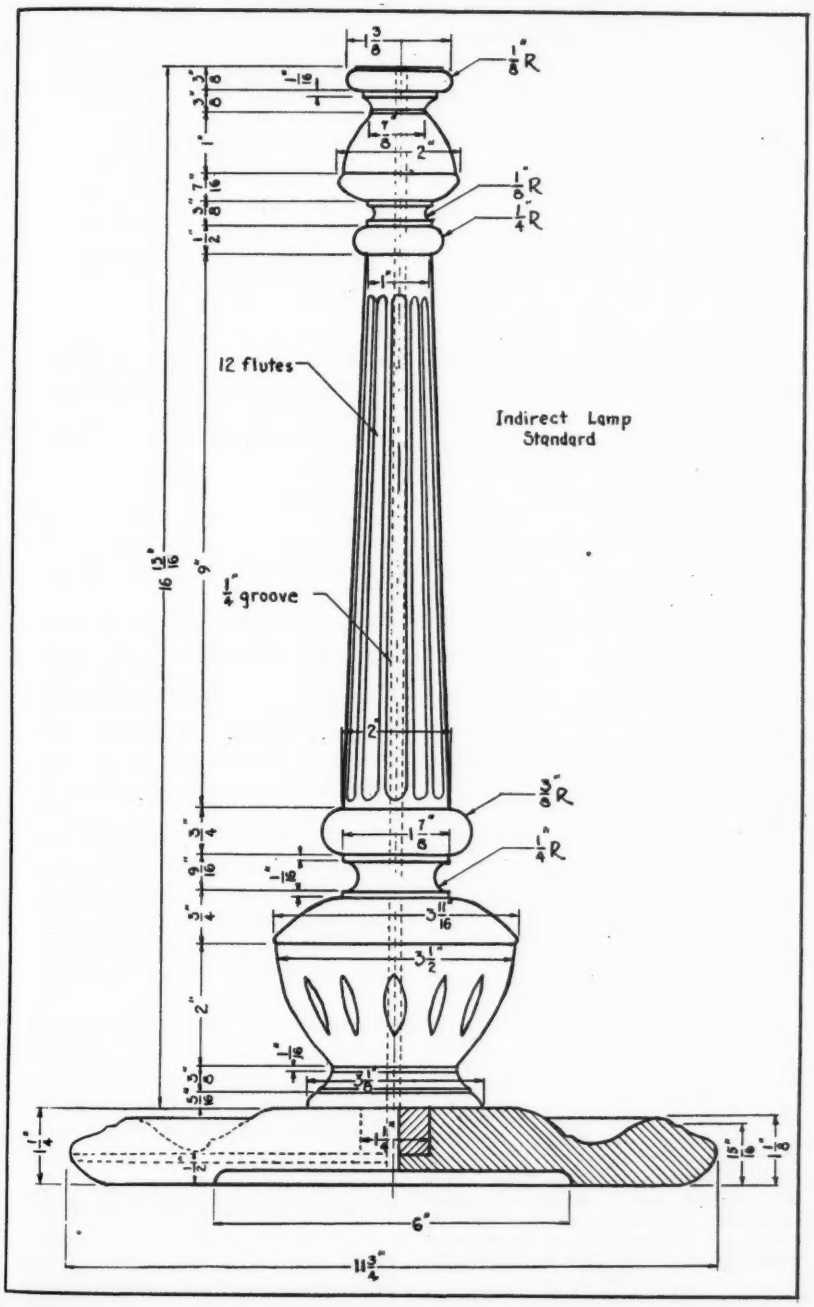
Tested Instructional Projects

—These projects have all been shop tested for school use

Indirect Table Lamp Standard

by L. A. Moore

This lamp utilizes the indirect lighting fixture which has met with such widespread popular approval. L. A. Moore is Assistant Professor of Industrial Arts at Kansas State College, Manhattan.



THIS turning project has proved to be an interesting problem to construct. The fluting may be omitted, but if facilities permit this operation, a most pleasing effect is given the lamp.

Method of Procedure

Spindle:

1. Plane one flat surface smooth of each 2" x 4" x 18" piece, preparatory for a glue joint.
2. Cut a groove 1/8" deep and 1/4" wide in the center of the smooth surface of each piece.
3. Glue the grooved surfaces together, using a 1/4" x 1/4" x 1 1/2" piece of hardwood. Plug both ends. This will insure proper alignment and form solid ends for lathe centers.
4. Square up the ends and turn the spindle according to the drawing, using the top of the lamp for dead center.
5. With the use of an indexing head and portable shaper cut 8 or 12 flutes with the grain of the wood. (Upper flutes cut from the front side of lathe; lower flutes cut from the back side of lathe.)
6. Sand smooth.
7. Drill out plug that was inserted in base end of spindle.
8. On the white-pine false face plate scribe two circles, one with a 7" diameter, the other with a 10" diameter.
9. Mark off six arcs for screws.
10. Secure face plate to the false face plate.
11. Use the 7" diameter circle and screw on the base.
12. Hollow out the bottom as shown in the drawing.
13. Remove the screws from the 7" diameter circle. *(Cont'd on next page.)*

Library Magazine Rack

by **G. B. Westerberg**

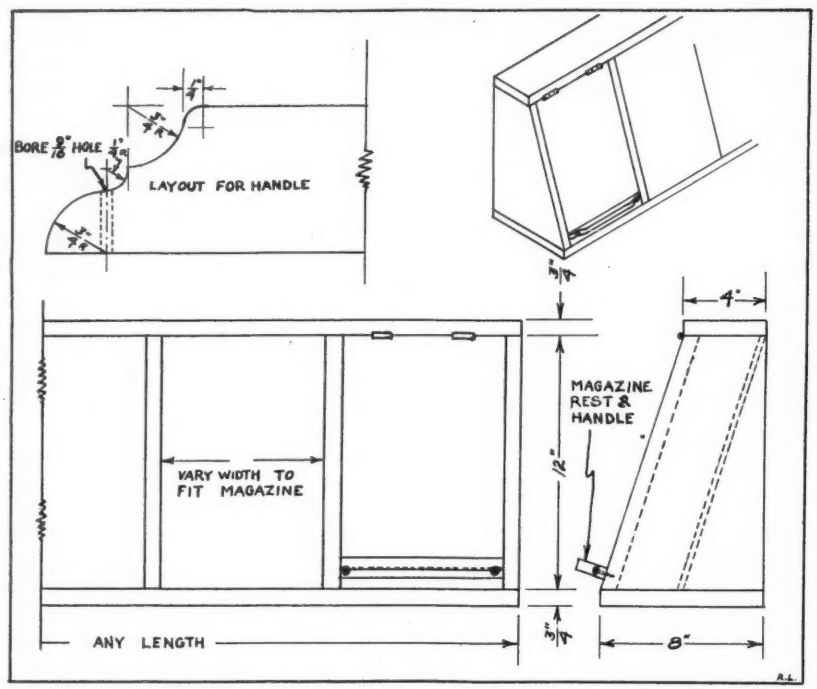
Students make everyday use of their handiwork in this project which was built to fill a real need. G. B. Westerberg teaches Industrial Arts in the Dundalk, Md., Junior High School.

IN our school, we need as much space as possible in a very crowded school library, and this magazine rack seemed to be the solution to the magazine storage and display problem.

The idea originated in the mind of the principal and we worked out the idea in the shop. The dual purpose of the rack is to display the current issue of the magazine on the cover and store the back numbers in the space in back of the cover. Since the door is hinged at the top, it closes by merely dropping the handle.

This rack has now been in use for about a year and has proved to be very satisfactory.

The operations are quite simple and may easily be adapted to junior high schools. The rack may be made any length and in any number of units. The handle serves as a magazine rest as well as a handle. The backs may be made of plywood or beaver board, and may be set in a groove or held in by means of fine moulding.



(Continued from preceding page)

14. With 10″ diameter circle, fasten face plate on the other face of base.

15. Turn out base.

16. Glue the spindle to the base using the lathe to clamp into position.

17. Drill a 7/32″ hole from the edge of base to center as shown in drawing.

18. Stain, fill, seal, and finish as desired. Polish in lathe.

19. Assemble the I.E.S. indirect lighting fixture and electric cord.

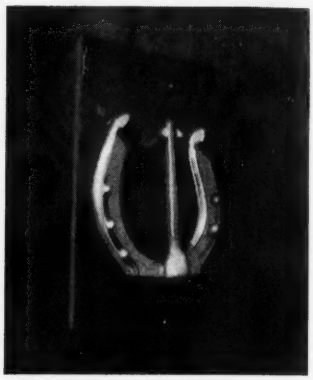
20. Glue a piece of desk felt on the base with a ⅛″ less diameter than the part that rests on table.

21. Secure a parchment shade with a lacquered inside surface, blown glass bowl, 100-watt bulb, and the lamp is complete.

BILL OF MATERIAL

No. Required	*Size*	*Material*	*Item*
2	2″x4″x18″	Walnut	Standard
1	1½″x12″ round	Walnut	Base
1	¾″x11½″ round	White Pine	False Face Plate

The horse-shoe door knocker has been a popular project with boys in general shop bench-metal work according to N. H. Poole who teaches general metal shop in the Emmerich Manual Training High School, Indianapolis, Ind.



Horse-Shoe Door Knocker

by **N. H. Poole**

THIS horse-shoe door knocker can be made by boys in the bench-metal unit of a general shop. This door knocker is largely a fabricating project since most of the parts have to be assembled and fitted into place. The knocker can be used on a boys' clubroom door, on cabins, or at the summer cottage.

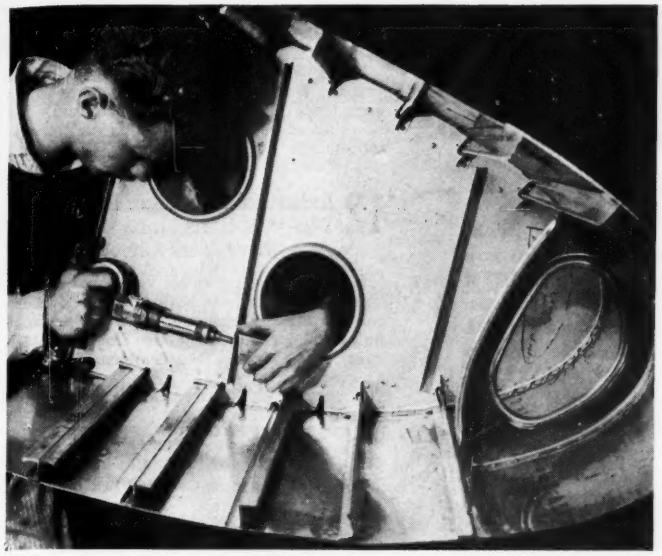
To make the knocker it is necessary to procure a small pony shoe. Large dints and marks are removed from the shoe with a fine file. Polish the shoe with fine emery cloth. Rivet two number four horse-shoe nails in the holes on each side of the shoe.

The knocker is made from a piece of soft round iron rod. The rod can be hammered into the shape of a large horse-shoe nail without being heated. Continue shaping the knocker to resemble a horse-shoe nail by filing. Polish with fine emery cloth. Drill a ⅛″ hole at the point end.

Drill a ⅛″ hole through the heads of two number five horse-shoe nails. These nails make the holder for the knocker. Make a rivet from a short length of wire and rivet one of these nails onto each side of the knocker nail.

Assemble by driving the knocker nails into a piece of wood which may be fastened to the door or by driving the knocker nails directly into the door. Locate the position of the shoe and fasten it to the wood or door by driving two number four horse-shoe nails through the remaining holes in the shoe.

Give the entire project two coats of clear lacquer or two coats of gold bronze paint.



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How To Run a Lathe is a two-reel, sound and color, 16 mm. film on lathe operation which may be had by any school teaching machine-shop work, either on a loan basis or outright purchase. Reel I acquaints the beginner with the lathe and how it operates; reel II shows each operation in the machining of a straight cylindrical shaft between lathe centers.

The book **How to Run a Lathe,** from which the film was made, is also available to machine-shop teachers without charge, as well as a number of other instructional aids, such as **South Bend Machine Shop Course, How to Grind Cutter Bits,** and **How to Cut Screw Threads.**

2 Industrial Arts Textbook Catalog. McKnight & McKnight, Bloomington, Ill.

Newest **McKnight** books include **General Plastics** by Raymond Cherry, **General Printing** by Cleeton and Pitkin, **Blueprint Reading, Checking, and Testing** by Steinike. The **McKnight** catalog lists texts and workbooks in all industrial arts fields, as well as tests, etc., for use in connection with the books.

3 Shop Layout Book. Delta Manufacturing Co., Milwaukee, Wis.

How to Plan a School Workshop—44 pages of actual photographs and floor plans of 30 shops, the cream of hundreds of entries sent to board of judges in Delta's shop planning contest. Authentic shop layouts embodying ingenious solutions of lighting, space, safety, convenience, and teaching efficiency problems.

4 Cutting Tool Charts. McKenna Metals Co., 274 Lloyd Ave., Latrobe, Penna.

Three charts with brief, illustrated, information on **How to Machine with Kennametal Tools, Recommended Speeds for Cutting Steels with Kennametal Tools,** and **Grinding Instructions for Kennametal Tools.** These charts are small, punched for hanging in the toolroom, and are coated to withstand handling with greasy hands. No charge.

5 Lathe Operation. R. K. LeBlond Machine Tool Co., Madison and Edwards Rd., Cincinnati, Ohio.

Running a Regal—handbook for student machinists; 112 illustrated pages of lathe instruction, covering all phases of lathe work.

Tool Room Grinding—completely new 52-page manual of toolroom grinding. Illustrated with photos, charts, diagrams.

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6 Washfountains, Group Washing Equipment. Bradley Washfountain Co., N. 22nd and W. Michigan Sts., Milwaukee, Wis.

Catalog No. 4010, showing all types of **Bradley** Washfountains, multi-stall showers, drinking fountains, and accessory equipment and supplies. Complete specifications for each unit are given, as well as description and illustration of various materials in which Washfountains are made.

Two well-illustrated booklets are also available, showing Bradley Washfountains and Showers on the job, and washroom layouts planned for industrial and school use.

7 Ohm's Law Calculator. Ohmite Manufacturing Co., Chicago, Ill.

Figures ohms, watts, volts, amperes—quickly, easily. Solves any Ohm's Law problem with one setting of the slide. Requires no slide rule knowledge; all values are direct reading. Scales on two sides cover range of currents, resistances, wattages, and voltages commonly used in electrical and radio work. Available for ten cents to cover handling costs.

8 Lathe Practice Wall Charts. Atlas Press Co., 1836 N. Pitcher St., Kalamazoo, Mich.

Four charts on metal lathe practice. Subjects: **Lathe Cutting Tools** (16¼" x 21"), **Thread Forms and Formulas** (16¼" x 21"), **60° V-Type Thread Dimensions** (16¼" x 21"), and **The Modern Backgeared Screw-Cutting Lathe** (31½" x 25½"). Blueprint style on durable ledger paper. Per set of four, 15 cents (stamps accepted).

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9 Blueprint Charts Showing Lathe Tool Bit Angles. Armstrong Bros. Tool Co.

Three blueprint charts showing the many shapes and sizes of lathe tool bits, the work for which they are intended, and the proper rake and clearance angles for each one. No charge.

10 Precision Lathes—Catalog. Sheldon Machine Co., Inc., Chicago, Ill.

Sheldon Machine Co. offers its catalog of **precision lathes and accessories.** Each lathe is illustrated, and complete specifications and prices are given. In addition, the Sheldon line of milling-machine and drill-press vises, arbor presses, angle plates, and shaper vises is described.

11 Woodcraft Supplies. Long's Woodcraft Supply, Goshen, Ind.

Long's Woodcraft catalog lists kiln dried lumber, finishing materials, furniture hardware, knock-down furniture, glues, and other materials of use to woodworking and general shop teachers. Catalog, ten cents.

12 Industrial Education Books. John Wiley & Sons, Inc., 440 Fourth Ave., New York City.

Newest **Wiley** books for vocational and defense training include **Basic Units in Mechanical Drawing** by Hoelscher and Mays, **Essentials of Shop Mathematics** by Slade and Margolis, and **Airplane Maintenance** by Lesley. Catalog free.

13 Metalworking Lathes. Logan Engineering Company, Chicago.

Logan Engineering Company announces its new back-geared, screw-cutting **Bench Lathe No. 210**—10" swing; 24" between centers; ballbearing headstock spindle; 25/32" hole through spindle; rubber mountings on countershaft assembly. Send for information and prices.

14 "Turquoise" Drawing Pencils. Eagle Pencil Company, 703 E. 13th St., New York City.

Free—a "Chemi-Sealed" **Turquoise** pencil in any grade you desire, for personal proof of **Turquoise** quality. Be sure to include your **supplier's name** and to mention **School Shop.**

15 Crafts Knives. X-acto Crescent Products Co., 440 Fourth Ave., New York City.

Knives with interchangeable blades—for use by pressmen, leather workers, and in all manner of arts and crafts work—are described in the X-acto circular. Knife kits, containing several handles and assorted blades, are also listed and illustrated. No charge.

16 Industrial Education Books. Manual Arts Press, Peoria, Ill.

Free Catalog No. 74, 77 pages listing textbooks, workbooks, and tests for teachers and class use in Industrial Education, drawing and design, shop work, art crafts, and for the home workshop. Descriptive circulars are also available for any books listed, giving more particulars.

17 Auto Repair Short-Cuts. Champ-Items, Inc., 6191 Maple Ave., St. Louis, Mo.

Cures for Motor Car Ailments — 80-page booklet describing many common car and truck troubles and short cut ideas to cure them. No charge.

18 Gluing Helps. Casein Company of America, Dept. SS, 350 Madison Ave., New York City.

Casco Gluing Guide—Complete directions for using all **Casco** glues. Mixing procedure, liquid life, setting period, assembly, veneering, etc.

Casco Gluing Chart—for shop wall. Tells which glues to use on different kinds of woods and different types of joints—on wood or any combinations of 23 building materials. No charge.

19 Books for Defense Training. McGraw-Hill Book Co., 330 W. 42nd St., New York City.

McGraw-Hill Books for Defense Job Training—a booklet describing new and standard texts, handbooks, and reference books.

Books for Defense Industries and the Armed Forces—a list of new texts in actual use in defense-training courses and in the armed forces.

"TEN"—**Technical Education News,** timely articles by educators and industrial leaders, institutional news, and news about latest defense developments.

20 Industrial Arts Education Series. The Macmillan Company, New York.

First in this new series of industrial arts books is **The Graphic Arts** by William H. Johnson and Louis V. Newkirk. Titles to follow are **Metalcraft, Ceramics,** and others. Send for information.

The firms listed on these pages will be glad to fill your request—their address is given in each case.

21 Plastic Wood. A. S. Boyle Co., Jersey City, N.J.

Plastic Wood for shop projects—repair damaged wood, seal cracks and screw holes, etc. Send for information.

22 Drafting Standards. Higgins Ink Co., Inc., 271 Ninth St., Brooklyn, N. Y.

Drafting Standards Accepted and Proposed—authentic standards of the American Society of Mechanical Engineers and the American Welding Society. One copy only **free of charge** to each teacher of mechanical drawing who requests a copy on school **stationery.** To others, 50 cents per copy.

23 Shop Furniture. E. H. Sheldon & Co., Muskegon, Mich.

Shop Section of Catalog No. 25—shows the complete **Sheldon** line of shop benches and tables, drawing tables, cabinets, vises, and other shop equipment. No charge.

24 Turret Lathe Operation. Warner & Swasey Co., Cleveland, Ohio.

Turret Lathe Operators Manual covers all phases of turret lathe work: explains metal-turning methods, short-cuts; contains tables on feeds, speeds, tool angles, threads. 240 pages, illustrated. Price $1.00 per copy.

25 Furniture Hardware. Thurston Supply Co., Anoka, Minn.

The 1942 **Thurston** catalog lists all kinds of unusual cabinet and furniture hardware and devices. No charge.

Most items described are FREE—BUT don't forget to enclose coins or stamps for those for which a charge is made!

26 Vocational and Defense Training. American Technical Society, Drexel Ave., at 58th St., Chicago, Ill.

Catalog describing practical new textbooks, workbooks, and reference books, especially prepared for defense, vocational, and industrial arts classes. Covers machine trades, building trades, aviation, shop mathematics, welding, ship-building, and other fields. No charge.

27 Semi-Technical Vocational Books. Frederick J. Drake & Co., 600 W. Van Buren St., Chicago.

Practical, semi-technical books for reference and industrial and defense training—subjects covered include radio, welding, painting, aviation, sheet metal, electricity, diesel engines, and ship building.

28 Flexible-Shaft Tools. Foredom Electric Co., 27 Park Pl., New York City.

The **Foredom** Catalog lists a complete line of flexible-shaft tools and accessories for working and finishing wood, glass, plastics, etc. Will mill, engrave, sharpen, grind, and polish.

29 Industrial Training Films. Brandon Films, 1600 Broadway, New York City.

Newest **Brandon** release is **Dis-Assembly and Inspection of the Airplane Engine,** produced with cooperation of Missouri Aviation Institute. Other 16 mm. silent and sound films for vocational training.

30 Pottery Supplies. Ceramic Atelier, 923 N. LaSalle St., Chicago, Ill.

New **Ceramic Atelier** booklet includes instructions on ceramics, clays, glazes, kilns, and descriptions of all pottery supplies furnished by the company. No charge.

31 Fraction Conversion Slide Rule. Sum-Up Slide Rule Co. 114 Liberty St., New York City.

The new **Sum-Up** slide rule adds and subtracts and converts fractions of an inch, millimeters, and decimals of an inch at direct reading of the scale; no slide-rule knowledge needed. Price $2.00, or write for free leaflet.

32 Tool Steels Textbook. Carpenter Steel Co., Reading, Pa.

Tool Steels Simplified—315 pages on selecting tool steels, making tools, improving tool performance. Price, $1.00 postpaid; or send for free descriptive leaflet.

The COUPON is EASY to use—just CIRCLE the number corresponding to the item you want!

33 Leathercraft Projects. Horton Handicraft Co., Hartford, Conn.

The **Horton Handicraft Handbook** contains 72 pages of educational leathercraft projects. Most items require no tools, and cost from five cents up. Free to teachers—be sure to include grade you teach with request.

34 Bandsander. Mead Specialties Co., 15 S. Market St., Chicago, Ill.

Four-page folder showing how the **Mead Bandsander** is put to use in wood-shops, pattern-shops, and for sanding and grinding woods, metals, plastics, etc.

35 Vocational Training Motion Pictures. Walter O. Gutlohn, Inc., 25 W. 45th St., New York City.

Latest catalog lists aviation mechanics series, photography, art techniques, and handicraft films. Films are 16 mm., for rental or sale.

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4 9 14 19 24 29 34
5 10 15 20 25 30 35

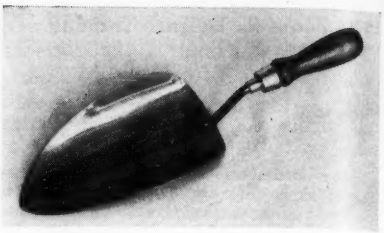
Planting Trowel *by* Otto A. Steinike

THE planting trowel shown herewith is a popular project in our eighth-grade try-out course. Since our industrial department is divided into unit shops, this project was developed to correlate woodwork, sheet metal, machine shop, and drawing in the try-out period. The plan does not always function at its best since the groups of eighth graders rotate to the various unit shops, and some groups will have metal before drawing, but the idea of related work is readily grasped by the students as the trowel is being produced.

In the drawing department, the separate pieces that go to make a trowel are assigned as drawing problems in the pictorial position and the students make working drawings so they can, if necessary, use them in the metal department. The metal parts, such as the blade, rod, and nut, are made in the sheet-metal department and not all students work on the same part at one time.

The ferrule is machined by the students in the machine shop when they have finished the above parts. The job might appear difficult for eighth graders, but it has created considerable interest and also gives the boys a try at lathe work, and the results are excellent.

The wood handles are turned in the wood shop as a turning exercise, and



This project has been successfully used to correlate various units in an eighth-grade try-out course. It may also be used as a general shop project. Otto A. Steinike teaches drafting in the Beaver Dam, Wis. High School.

extra handles are turned and given to the group working in the metal department, so they can assemble the trowel before going to the woodworking shop. This group, in turn, will make handles for some other group.

Operations:

Blade 18g B.I.—(1) Cut blank 4½ x 7¼. (2) Lay out around pattern and scribe center line. (3) Cut out to shape. (4) File to line. (5) Center punch and drill for rivets on center line. (6) Form on forming rolls. (7) Remove burrs and bevel tip.

Rod 5/16″ Hot Rolled St.—(1) Cut to length 7⅜″. (2) Forge one end to size. (3) Thread one end—5/16-18 N.C. (4) Drill holes ⅛ for rivets, match with *blade*. (5) Bend to shape (hot or cold). (6) File.

Ferrule Pin 3/32 Drill Rod.—(1) Cut to length ½″.

Ferrule.—(1) Chuck and face stock. (2) Drill 5/16″ hole when chucked in lathe. (3) Bore-turn inside. (4) Turn outside. (5) Taper turn big end. (6) Polish. (7) Cut-off.

Handle, Maple or Hickory.—(1) Cut stock 1¼ x 1¼ x 5″. (2) Locate center on ends and drill 5/32 hole 1″ deep in both ends. (To be used as pilot hole for 5/16″ hole.) (3) Turn shape to size. (4) Bore ⅝ dia. ¼″ deep on nut end. (5) Drill 5/16 hole through handle.

Nut ⅝ d., Steel or Brass rod.—(1) Cut-off. (2) Drill ¼″ or No. F drill. (3) Tap out 5/16-18 N.C. (4) Slot with back saw. (5) Polish.

Assembly: (1) Rivet blade to rod (rivet heads on under side). (2) Locate ferrule on rod and drill 3/32 hole through ferrule and rod. (3) Put in pin and set. (4) Put on wood handle and nut. (5) Grind off rod projection and set nut. (6) Polish and paint.

● SCHOOL SHOP is seeking manuscripts describing meaningful projects. Send them to the Editor, Box 100, Ann Arbor, Mich.

AVA SUPPORTS VICTORY–TRAINING PROGRAM

WHILE the United States Congress was declaring war on the Axis powers during the days that followed the bombing of Pearl Harbor, more than 3000 members of the American Vocational Association assembled for their annual convention in Boston, December 10-13.

In the tenseness of war-time atmosphere, A.V.A. delegates threw their entire energy into consideration of ways and means whereby vocational education, through its emergency and regular programs, could supply its full share of the millions of additional workers needed immediately for war industries.

For two days prior to the opening of the convention, state directors and supervisors of vocational education met with representatives of the Army and Navy, and of the U. S. Office of Education engaged in vocational defense-training activities. "Speed-up training" immediately became the slogan of the week. The gravity of the situation, with the United States directly involved at last in World War II, was brought into virtually every session in the general and sectional meetings of the convention.

Complete acceptance of the new challenge to vocational education came at the closing evening session when the A.V.A. House of Delegates, representing the 26,000 members of the Association, resolved unanimously "that we hereby pledge the united and untiring efforts of our membership and the complete utilization of our schools and training facilities throughout the nation in an all-out training-for-victory program."

At the convention banquet session, Paul V. McNutt, Federal Security Administrator, and Toastmaster John W. Studebaker, U.S. Commissioner of Education, complimented members of the A.V.A. on the manner in which the vocational defense-training program had functioned in its first 17 months. "You haven't begun to serve," said Mr. McNutt in comparing the initial accomplishments with the needs that lie ahead. "Next year and the year after it, double service will be demanded of you. America hasn't begun to fight!"

Decentralization of industry and agriculture were advocated by U.S. Senator Josh Lee, of Oklahoma, as an aid to winning the war. A number of speakers, notably J. C. Wright, Assistant U.S. Commissioner for Vocational Education, and Oscar W. Rosenthal, president of The Builders' Association, Chicago, advocated immediate exploration and desirable expansion through the establishment of larger area vocational schools. Kenneth C. Ray, Ohio State Director of Education, at the opening session declared that only one of every 11 youths leaving high school take any part-time or supplementary education after graduation, and that the traditional curriculum is unsuited to 75 percent of high-school youth.

Early in the convention week it became apparent that increased activities would be demanded in training men—and women, too—for war-industry production jobs. Lieutenant-Colonel Frank J. McSherry, Director of Defense Training, Federal Security Agency, told of efforts to place more industries on a seven-day week and a 24-hour day, and to accomplish this the industries would need an additional 2,000,000 workers. Vocational schools would have to increase job training by 40 to 50 percent as their share in meeting the demand, he said.

Every possible way to increase production of war materials through training of workers was discussed by vocational teachers, supervisors, directors, and government officials. Teacher training, teacher shortages, the industrial training of women and girls, the long-term program and social legislation, training for the armed forces and for public-service occupations, and the need for expanding apprenticeship training were some of the more significant sessions of the industrial education program.

The industrial arts education program featured discussions and papers on the value of industrial arts instruction as preparatory to vocational education. William H. Johnson, Chicago Superintendent of Schools, said in part: "Our job in vocational education today is to meet the demands we can no longer evade. Changes in the industrial and social world demand changes along educational lines. We know now that preparatory vocational training must be part of the educational picture . . ."

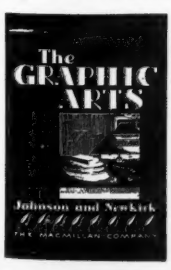
In resolutions the convention reaffirmed the Association's belief that the "responsibility for vocational education should continue to rest with the public school systems of the state and local communities, with financial aid and guidance from the federal government."

The annual citation for outstanding service for a member of the A.V.A. through the years, was awarded to Dr. Robert O. Small, Massachusetts State Director of Vocational Education. The award is given by "The Ship," an organization of representatives of A.V.A. convention exhibitors.

Announcing the publication of

THE GRAPHIC ARTS

By WILLIAM H. JOHNSON *and* LOUIS V. NEWKIRK



A superb new study of the graphic arts—printing, photography, engraving, papermaking, bookmaking, etc.—for manual arts classes or general education purposes. Replete with projects. Handsomely and instructively illustrated. For junior and senior high school levels.

(*The Graphic Arts* is the first in a forthcoming series, *Industrial Arts Education Series*, by Johnson and Newkirk. Titles coming soon are *Metalcraft* and *Ceramics*. Other titles to follow shortly.)

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PLASTIC WOOD

WHAT'S DOING IN THE FIELD

news

OF INDUSTRIAL EDUCATION

THE NATION'S vocational defense-training program completed 17 months of operation on November 30 with a total of 1,776,000 persons who have completed training or are now in training in five types of courses, reports John W. Studebaker, U.S. Commissioner of Education.

Two of the five divisions of the program—pre-employment and supplementary courses—are training skilled or semi-skilled workers for jobs in aircraft, shipbuilding, machine tool, and other defense industries in more than 1000 vocational schools in the 48 states, Hawaii, and Puerto Rico.

Two others, which offer courses in approximately 10,000 school shops to out-of-school youth and those NYA enrollees not directly preparing for defense work, are considered "feeder" programs from which trainees may enter intensive defense-training courses.

The 17-month totals in these courses alone reached 1,621,000.

TO FACILITATE wartime mobilization of educational resources, a Wartime Commission has been created within the U. S. Office of Education, with John W. Studebaker, Commissioner of Education, as chairman.

Announced by Federal Security Administrator Paul V. McNutt at a meeting of education executives, the commission is to consider wartime educational problems which may arise.

Assisting Chairman Studebaker in work of the Commission are Vice-Chairman Bess Goodykoontz, Assistant Commissioner of Education, and Executive Director Fred J. Kelly, Chief of the Division of Higher Education. Prominent educators from all parts of the country have been asked to take part.

MILWAUKEE schools are considering the possibilities of utilizing school shops and students in training for actual production work on machine tools, according to press dispatches. Under the system, said to be favored by superintendent of schools Milton C. Potter and a school board subcommittee, raw materials would be furnished by Kearney & Trecker, Milwaukee manufacturer of machine tools. The students would work on the machine parts in the schools—less advanced students on rough work and those about ready to go into industry would do the finishing. Students would not be paid for work done during school hours, but the company will probably donate equipment and scholarship grants. Approval of the program by the school board is expected. Kearney & Trecker holds large defense orders for machine tools.

SHOP teachers will be interested in a shop safety survey reported by Leslie W. Irwin of the University of Chicago and Ross Stephens of Washington, Iowa, High School in the December 1941 *Research Quarterly* of the American Associaion for Health, Physical Education, and Recreation.

Personal visits were made to 40 representative middlewest high schools, whose shops, among other features, were examined for recognized safety procedures. The results of the survey:

Shops with more than one exit, 48 percent.

Metal containers for oily rags, 61 percent.

Oily rags, bottles of gasoline, or other inflammable substances left carelessly about, 7 percent.

Metal container for shavings, 45 percent.

Accessible fire extinguishers, 55 percent.

Fire blankets provided for smothering ignited clothing, 0 percent.

Safety guards for power machines, 41 percent.

First-aid materials available, 48 percent.

Easily accessible master switch for all electrical devices, 70 percent.

Painted safety lanes around power tools, 7 percent.

CERTAIN liberalizations in priorities for schools are contained in *Preference Rating Order P-100,* recently issued by the Office of Production Management to replace the former P-22. Schools, including vocational schools, may take advantage of assistance granted by the new ruling.

To summarize, the main changes over the previous form, P-22, are:

Maintenance, repair, and operating supplies are permitted to be kept at a level of 110 percent of the amount purchased in the corresponding quarter of 1940 to allow for price increases.

Office supplies, except paper products, are included as operating supplies.

Deleted is the requirement that the rating shall not be applied unless the material cannot be obtained without its use.

Now included in allowable purchases is replacement of equipment which is beyond the possibility of *economic* repair.

Application of the rating remains the same—administrators must sign personally the following statement attached to or written on the order: "Material for maintenance, repair, or operating supplies—rating A-10 under Preference Rating Order P-100, with the terms of which I am familiar."

IN THE *Morning Mail*

● Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Mich.

Gentlemen:

Congratulations for SCHOOL SHOP magazine. I am enclosing a list of industrial arts instructors in the Hartford public schools. The many fine contributions appearing in SCHOOL SHOP are so valuable I want to be sure that each one of our instructors will receive a copy.

Two of our instructors are in the army and if it were possible, I am sure these men would appreciate having a copy. . . .

My very best wishes to SCHOOL SHOP for the holiday season and I hope every industrial arts instructor will support SCHOOL SHOP by providing material about their shop organizations, projects, related information, valuable aids they may have used, interesting meetings, pictures, and of course any problems that may be troubling them.

WALTER F. MCANDREWS
Supervisor of Industrial Arts
Hartford, Conn., Schools

[We would like all industrial education teachers now in the armed forces to receive SCHOOL SHOP, but unfortunately our circulation list is already as large as we can handle. We have, however, cut our subscription price of $2.00 in half—and will send SCHOOL SHOP to any man in the services for $1.00.

Reader MCANDREWS has stated our editorial needs precisely.—*Ed.*]

Gentlemen:

For the past two weeks I have been collecting scrap metal from the shops at Samuel Gompers Vocational High School in New York. Nearly all of the electrical shops have scraps of copper wire; auto mechanics and machine shops, steel and iron—and these were formerly thrown away. Now they are collected at clean-up time, near the close of the school day, and the metals separated—copper, brass, iron, aluminum, etc.

It seems to me that an organized drive in all of the vocational schools of the nation for scrap-metal collection would materially help national defense. Not only can these metals be collected from auto and machine shops, but lead and others from printing, plumbing, welding, aviation, and sheetmetal shops and from industrial arts shops in junior and senior high schools.

ABRAHAM DIAMOND
New York, N. Y.

[Mr. DIAMOND'S suggestion has many possibilities—shop teachers should see what they can do.—*Ed.*]

Gentlemen:

Please inform me where I can get technical or hobby books on zinc etching and photo-

engraving. Especially line-drawing zinc etching books for use with chemistry and printing departments.

DAVID L. MANTLE
Woodrow Wilson High School
Dallas, Texas

[A few of the books on this subject are listed below.—*Ed.*]

Practical Photo-engraving, H. A. Groesbeck, New York: Harper, 1930.

Process and Practice of Photo-engraving. Garden City, New York: Doubleday, Doran & Co., 1924.

Photo-engraving in Black and Color, S. H. Horgan. Boston: American Photographic Publishing Co., 1938.

Process Engraving, E. S. Pilsworth. New York: Macmillan, 1922.

Photo-engraving in Relief, Smith, Turner, and Hallam. New York: Pitman Publishing Co., 1932.

Gentlemen:

May I extend an enthusiastic "thank you" for my first copy of SCHOOL SHOP? All future issues will be equally welcome. Your unusual circulation policy should contribute to the success of the magazine in bringing industrial arts teachers of the country together. May I wish you complete success!

If I may express my own ideas, I would like to say that we would especially appreciate modern project designs and discussions on shop improvement. This issue helps to fulfill some of our needs in that respect. We are anticipating further help through subsequent issues.

WILLIAM J. LAWRENCE
Myrtle Creek, Oregon, Schools

Gentlemen:

I enjoy reading each issue of your magazine and it is made available to our students. I think that there is a decided need for such a publication as SCHOOL SHOP.

RALPH W. WHALIN, Chairman
Industrial Arts Department
Eastern Kentucky State Teachers College
Richmond, Ky.

Gentlemen:

I have received many letters concerning my article on the *General Shop*, published last month. My school was also very pleased, and has asked me to write for a half-dozen copies of the issue.

RALPH F. PARKER
Instructor of Industrial Arts
Reliance, Wyo., Schools

Gentlemen:

I wish to thank you for having my name on your complimentary mailing list for SCHOOL SHOP. I find it interesting and helpful. . . .

Would you please send me the name and address of the manager of the Priorities Field Office in this district. . . .

V. H. STROUD
Senior High School
Hutchinson, Kansas

[Address of your nearest Priorities Field Office is:

Clifford H. Carr
Priorities Field Service
Office of Production Management
Federal Reserve Bank Bldg.
Kansas City, Mo.

Gentlemen:

There is without doubt a definite place for such a publication as you have so auspiciously started. I would extend my heartiest wishes that your venture will be a great success. . . .

ALLEN D. BACKUS
Director of Practical Arts
Newark, N. J., Schools

Gentlemen:

Your magazine certainly must succeed. The "Washington Letter" feature alone is worth the subscription price.

KENNETH E. PARR
Ottawa, Illinois

Gentlemen:

I find your publication informative, interesting, and up-to-the-minute in our field. Thank you.

ALBERT SHERNER
John D. Wells School
Brooklyn, N. Y.

Gentlemen:

In the Benson Polytechnic School machine shop, we are very appreciative of your fine magazine and wish to thank you for sending it. Best wishes for the growth and success of SCHOOL SHOP.

Benson Machine Shop Instructors
Benson Polytechnic School
Portland, Oregon

Gentlemen:

As a member of the Industrial Arts Department of Miami, I have come in contact with your fine magazine and wish to congratulate you on the good work you are doing. . . .

WALTER I. SHOCKEY
Miami University
Oxford, Ohio

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instructional resources

Inquiries concerning materials described in these columns may be addressed to SCHOOL SHOP, Box 100, Ann Arbor, Mich., and will be passed on to the proper firm or persons.

Books

Six Foolish Drivers. A. W. Schlichenmaier. Peoria: Manual Arts Press, 1941. Pp. 119. $1.50.

Six imaginary "case histories" of typical auto accidents, showing the events leading up to the accidents. Main emphasis is upon the attitude of the driver toward the use of the machine and its possible effects on society. Each chapter concludes with a "personal quiz" on the "case" and an explanation and summary.

Arthur W. Schlichenmaier teaches social science at Roosevelt Junior High School, Peoria, Ill.

Home Mechanics for Girls. J. C. Woodin. Wichita: McCormick-Mathers Publishing Co. Pp. v + 121. $ .60.

An instructional workbook to provide girls with practical, everyday information and experiences useful in coping with the problems likely to be encountered around the home. Although quite elementary, and written especially for girls, the book includes much material to benefit the boy who will some day be the "handyman" around the house. Includes material on care of floors and painted surfaces, use and repair of electrical goods, etc.

J. C. Woodin is supervisor of industrial education, Wichita, Kan., schools.

How To Get the Most Out of Your Power Tools. Sam Brown. Milwaukee; Delta Manufacturing Co. $ .25 each.

Most of the booklets in this ever-popular series have been reprinted again in 1941. Each gives a wealth of information about the tool for which it is written, with inspirations and ideas for new and original projects. Booklets to date have been printed on the band and scroll saws, shaper, lathe, drill press, circular saw and joiner, and abrasive tools.

Sam Brown is editor of *The Deltagram*.

Welding and Its Application. Boniface E. Rossi. New York: McGraw-Hill Book Company, Inc., 1941. Pp. ix + 343.

This book begins with a discussion of welding and its uses in industry. It includes a definition of welding terms and a detailed study of the various welding processes, with the greater part of the book being devoted to arc welding. Chapters on metallurgy of welding, testing and inspection of welds, and welding jigs are also included. Appendix, index. Illustrated with drawings and photos.

B. E. Rossi, M.E., is director of the welding division of the Delehanty Institute, New York City.

Tool Design. C. B. Cole. Chicago: American Technical Society, 1942. Pp. 498. $4.50.

A presentation of the "art and science" of tool design as applied to tooling for production. The following phases come under discussion: practice and procedure, materials, design standards, commercial standards, cutting tools, tooling for production, drill jigs, fixtures, dies, gauges. Illustrated with photos and drawings; appendix; index.

Charles Bradford Cole, M.E., is president, Tool Equipment Sales Co., Chicago, member of American Society of Mechanical Engineers, and author of *Tool Making*, from the presses of the same publisher.

How To Design and Install Plumbing. A. J. Matthias, Jr. Chicago: American Technical Society, 1941. Pp. 442. $3.00.

Thirty-four chapters on modern plumbing —including material on sewerage and water systems of municipalities and technical details about plumbing for homes and large buildings. Chapters on hot water supply, fire lines, and installation of the several home kitchen and bathroom fixtures. Tables; charts and diagrams; photographs; index.

A. J. Matthias, Jr., teaches plumbing in Wisconsin vocational schools. He is also author of *Elementary Plumbing* and *Plumbing*, both of which are used in the Wisconsin schools.

Blueprint Reading for the Machine Trades. J. J. Weir. New York: McGraw-Hill Book Co., 1941. Pp. vii + 82. $1.25.

Discusses visualizing objects from their representations on the drawing board; reading dimensions and measurements; and titles and notes. Goes into more complicated problems involved in threading; detail and assemblies; sections; machine operations; screws, rivets, keyways, etc.; fits and tolerances; auxiliary views; and gears and gearing. Also chapter on reading commercial prints. Indexed; illustrated with black-on-white drawings and blueprint reproductions. Questions and problems on each phase of work.

John J. Weir, B.S., teaches mechanical drawing at William L. Dickinson High School, Jersey City, N. J.

Information and Operation Units in Machine Woodworking. R. E. Smith. Wichita: McCormick-Mathers Publishing Co. Pp. 159. $ .84.

Following chapters on shop safety and maintenance are sections on various phases of machine woodworking: woodturning, power grinding, sawing, jointing, planing, mortising, shaping, and sanding. Appendix on common measures and formulas. Each section contains information, operations, and questions. Illustrated with drawings.

Robert E. Smith, Ph.D., is associate professor of education, Ohio State University, Columbus.

Effective Foremanship. H. B. Maynard, editor. New York: McGraw-Hill Book Co., Inc., 1941. Pp. xii + 263. $2.50.

Nineteen chapters on problems faced by the modern foreman written by 15 men prominent in management and related fields. Discusses such problems as responsibility of foremen, industrial organization, control of production, wage problems, quality control, and safety.

The editor, Harold B. Maynard, is president of the Methods Engineering Council, Pittsburgh, Pa.

Fifty Things to Make for the Home. Julian Starr, Jr. New York: Whittlesey House (McGraw-Hill), 1941. Pp. 1x + 207. $2.00.

Following an introductory chapter on the setup of the workshop and the use and care of tools, the author presents 52 projects of usefulness about the home. Projects are grouped according to the part of the home: kitchen accessories, household conveniences, furniture, outdoor accessories, toys, novelties. Illustrated by the author.

Not a text in the usual sense, but helpful to the teacher looking for project ideas.

Radio Troubleshooter's Handbook. A. A. Ghirardi. New York: Radio and Technical Publishing Co., 1941 (second edition). Pp. x + 710. $2.00.

First half of the volume is devoted to "case histories" of symptoms and remedies for common troubles that occur in more than 4,000 models of popular radio makes, listed according to make and model. Chapters on I-F transformer construction, troubles, servicing, alignment. Cross indexes of radio model numbers; trouble-shooting reminder charts for common receivers; installation information; and a wealth of additional information for the radio repairman. Directories of radio and equipment makers; radio schools; radio book and magazine publishers. Indexed.

Alfred A. Ghirardi, B.S., E.E., has written *The Radio Physics Course* and several other texts. He is a member of Radio Servicemen of America and Institute of Radio Engineers.

Pressman's Pocket Manual. J. N. Harrison. Oakland: J. N. Harrison. Pp. 126. $1.00. (Paperbound.)

Not a textbook on printing but a small handbook containing useful information, "kinks," and related information of use to pressmen. Deals with platen and cylinder presses, both hand and automatic. Also information on paper—basic weights, sizes, suitable inks, etc. Glossary of trade terms. Organization aids for printing instructors are also included.

J. N. Harrison is instructor in presswork at Central Trade School, Oakland, Calif.

Films

Slidefilm Catalog. Chicago: Society for Visual Education. 1941.

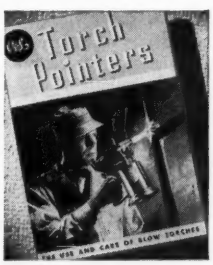
Contains listings of all "Picturols" distributed by the Society. SCHOOL SHOP readers will be interested in the slidefilms on vocational training and guidance. Many films have been prepared since the beginning of the defense program.

NEWS FROM industry

For items listed in this column, readers may address the firm named or write to News from Industry Dept., SCHOOL SHOP, Box 100, Ann Arbor, Michigan.

Price Reduced on Kennametal Tools

A price reduction in *Kennametal* lathe tools and tool blanks, effective January 5, 1942, has been announced by McKenna Metals Co., Latrobe, Pa. Fivefold increase in production in 1941 permitted a reduction of 20 to 30 percent in the prices of blanks customarily required for steel-cutting lathe and boring tools. Prices of complete *Kennametal* tools have also been reduced. New price list number 7, covering *Kennametal* tools and tool blanks listed in Catalog No. 42, may be had upon request from McKenna Metals Co., Latrobe, Pa.



'Torch Pointers' for Teachers, Students

Apprentices, trade-school students, and teachers will profit from *Torch Pointers*, a new booklet on blow-torch use published by Clayton & Lambert Mfg. Co., of Detroit, Mich., makers of blow-torches and fire pots. No charge is made for the booklet.

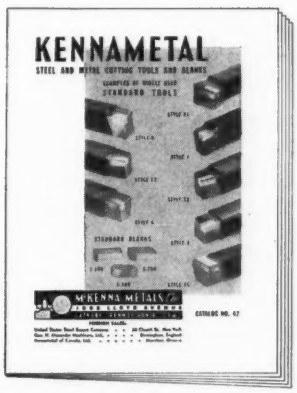
Through text and illustration, "Torch Pointers" tells how to get better results from blow-torches and how to lengthen their service life. Discussed are how the torch operates; methods of filling, starting, and stopping; trouble-shooting; assembly and disassembly; hard and soft soldering, brazing, and sweating; removing paint and other torch operations; and an entire section on safety.

New 'Skildrill' by Skilsaw

"Skildrill" a new small but powerful ¼-inch drill has recently been introduced by Skilsaw, Inc., Chicago. The drill is 6⅝ inches long and 2 9/16 inches wide, and has a full-load speed of 1050 rpm.

Catalogs . . . Lathes, Shapers, Drill Presses

Atlas metalworking lathes, shapers, milling machines, drill and arbor presses are described and illustrated in Catalog No. 41 of Atlas Press Co., 1836 N. Pitcher St., Kalamazoo, Mich. Specifications and instructive views of machining operations are given for each machine.



Steel- and Metal-Cutting Lathe Tools

Thirty-six pages of specifications and prices of standard *Kennametal* steel-cutting carbide tools and blanks constitute Catalog No. 42 of McKenna Metals Co., 274 Lloyd Ave., Latrobe Pa. Typical applications of each tool are illustrated by drawings, and photographs and information on specific uses of *Kennametal* have been included. Several pages are devoted to selection and design of tools and blanks, correct grinding procedure, brazing tool blanks, boring-tool setups, and other pertinent engineering data.

Plastic Hammers Developed by Rapid Mfg. Co.

Plastic hammers especially developed for tool and machine shops have been introduced by Rapid Mfg. Co., Glendale, Calif. Any metal or plated surface may be struck a full blow without marring.

Resistors, Rheostats, Chokes, Tap Switches

A new quick-reference catalog, number 18, has been issued by Ohmite Manufacturing Co., Chicago, Ill., containing up-to-date information on the wide range of Ohmite stock resistors, rheostats, chokes, and tap switches. Over a thousand items listed—with illustrations, descriptions, and useful information.

Lathe Tools, Tool Holders

A 230-page catalog, number C39, shows the complete line of Armstrong Bros. Tool Co., Chicago, Ill. Described and illustrated are lathe tools, tool holders, bits, blades, cutters, lathe dogs, clamps, wrenches, and other machine-shop specialties; complete specifications included.

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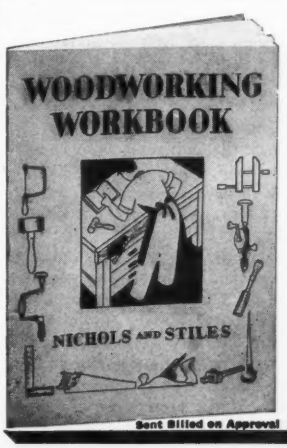

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What Do You Think?

Do you favor offering shop courses to girls? If so, why? If not, why not?

Says Lawrence F. Ashley, Chief, Division of Vocational Education, Yonkers, N.Y.:

I favor offering shop courses to girls because as the 20th Century moves towards its maximum development, it tends more and more to place the same responsibilities on girls and women that it does on boys and men. Education likewise is coming to have more nearly the same connotation for girls. Give them, therefore, experiences in the processes and with the materials of modern industry for educational background—for the sake of appreciation and understanding.

Since women spend most of the national income in normal times, they need industrial arts experiences for consumer information. Since girls and boys become homemakers, they both need these experiences for practical use in household organization and upkeep. Since girls need to have preparation for earning a livelihood, they need industrial arts experiences for guidance values.

In order to carry out our obligations to boys and girls alike the industrial arts teachers in the junior high schools exchange classes with the home economics teachers for a part of the year, to the extent that organization will permit. In other cases there are coeducational groups in industrial arts classes.

Says Stanley J. Pawelek, Supervisor of Industrial Education, Baltimore, Md.:

Certain industrial arts courses should be required of all girls at least through the junior high-school level. Industrial arts is admittedly a phase of *general*, not *vocational*, education, and as such should have much to offer to either boys or girls. A majority of the objectives applies to individuals of either sex, and it is not definitely established that boys are either in greater need of this experience or possess a preponderance of aptitude necessary for success in it.

All girls are potential mothers and homemakers. The division of labor between the man and woman in the home is no longer as rigid as it was a generation or two ago. The tasks confronting a modern housekeeper would probably baffle her mother and grandmother. She must be not only a cook, a seamstress, a laundress, a nurse, and a teacher, but also an electrician, a mechanic, a plumber, a painter, and a machine operator. A list of the repair, construction, and operative jobs assigned to her, in addition to her cooking, sewing, and marketing, would be impressive indeed.

It has been said that the purpose of our schools is "to teach pupils to do better the worthwhile things they will do anyway." Is this not a good argument for offering shopwork to all girls who come through our schools? If we are to prepare our students to be better citizens, and to live more completely, we cannot deny to approximately one-half of our population those courses which are probably more functional than a majority of the remainder of the school program.

Space does not permit the listing in detail of what the offerings to girls should be. Individual school philosophies plus the social and physical conditions will be the determining factors. In general, however, it appears that the greatest good will accrue from the following types of courses:

1. *Home mechanics.*—The repair and maintenance of the home, and the electrical and mechanical appliances connected with it. (The family automobile might well be included.)
2. *Hobby crafts.*—Artmetal, weaving, jewelry, leathercraft, linoleum block cutting, etc.
3. *Consumer information.*—A study of woods, finishes, metals, construction of furniture, good design, etc. (This course would be, in the main, not manipulative.)

Says George A. Willoughby, Professor of Industrial Arts and Head of Department, Michigan State Normal College, Ypsilanti, Mich.

I certainly favor offering shop courses to girls, especially general shop and the right kind of drawing, emphasizing everyday problems and giving an opportunity to gain a working knowledge of many types of activity which develop interest and also have future as well as immediate value.

One of the reasons why I believe in this is that I have given such courses for over 20 years and have found them very successful. The hundreds of girls we have had in classes show as much interest and ability as boys in many types of work and in some they excel.

The work helps to develop care and accuracy, ability to make sketches and plan projects, appreciation of the work of others, and the various other objectives of industrial arts for girls as well as for boys. Why shouldn't they be given these opportunities?

Says Violett O'Reilly, Principal, L. E. Rabouin Vocational School, New Orleans, La.:

If by shop courses is meant the training of girls to take their place in war-time production, then this training has my unlimited approval. If, however, the question applies to peace-time industry, I answer with reservations.

In an emergency such as we are now facing, all available manpower must be utilized and women should work shoulder to shoulder with the men of our nation, but in peace time I would be among the last to subscribe to girls being trained for industries that would in any way jeopardize our social and economic order. Any field of work that mitigates against wifehood and motherhood, which is woman's greatest career, is a menace to the social welfare of our country, for a nation is built on the family.

There are many fields for women and with persistence they can be opened up. In our school we have done just this, breaking down large areas of industry into small units and training just the number that can be employed. This has been most successful and we have won the support of every industrialist in our community. At the present we are training in 22 trades that employ only women.

Says John F. Friese, Professor of Industrial Education, Pennsylvania State College, State College, Penna.:

Yes, I am very much in favor of certain aspects of industrial arts for girls either in mixed or separate classes. It has been my good fortune to teach industrial arts in modified forms to girls several times beginning in 1914.

Boys most surely should study some phases of home economics such as balanced diet, materials and design of clothing, simple cooking, and budgeting an income.

Boys and girls should certainly study a few basic things in "commercial arts" such as a little typewriting, keeping a budget or debit-and-credit account, and everyday law and business practice.

Likewise girls today can and should be provided with experiences which can come only through intelligently planned industrial arts, taught by men teachers in shops. Five outcomes which contribute outstandingly to the education of all girls in an industrial society in America today are:

1. Securing first-hand experiences designed to gain appreciations of certain industrial materials, products, design, and workers.
2. Securing an understanding (not being fearful) of the things of an industrial world through experiences in handling, adjustment, and control.
3. Making common repairs and constructions which most women must do with structural things in and about the home.
4. Providing creative experiences in the artcrafts usually taught in industrial arts.
5. Training in making simplified house floor plans and study of building materials.

Says Howard C. Nelson, Industrial Arts Teacher, Monmouth High School, Monmouth, Ill.:

A large number of surveys have shown that shop courses for girls have proven to be valuable, for the realization of most of the objectives of industrial arts shop courses is as important to the lives of girls as it is to the lives of boys. Such classes as household mechanics, artmetal work, pottery, radio, electricity, photography, printing, and book-binding may well include girls. In much of their industrial employment, it is necessary that women and girls have manipulative dexterity which is equivalent to that required of men. If it were possible to expand the offering of shop courses in our school, the addition of courses for girls would be quite valuable.

Says J. Ely Van Hart, Supervisor of Practical Arts for Boys, Elizabeth, N.J.:

Although manual training has been an essential part of our school curriculum for half a century, it has been the general opinion of the public that industrial arts (manual training) is a subject only for boys. With the conditions of the world as they are through the present emergencies, educators have never had a greater opportunity for the develop-

ment of industrial arts among the girls and young women of our public schools.

Industrial arts work contributes greatly in helping pupils to develop skills in buying wisely and using properly the various appliances and furnishings which are found in the home. A large percentage of this purchasing is done by the women of our country and it is the women who are using the numerous appliances and who are selecting the furniture that is found in our homes. If there were no other reasons for a girl to take industrial arts, these alone would more than justify the courses.

More and more young women are entering our industries, and it is to their advantage to acquire a knowledge of the materials, tools, and machines of industry. It is equally important for a girl to understand and appreciate the contributions that are made by the workers of industry to our civilization.

Furthermore, industrial arts provides excellent opportunities whereby girls may develop life-long hobbies.

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*EDITOR'S NOTE: This statement of functions was prepared for and published by the Frank Wiggins Trade School, a free public school in Los Angeles, California, of which Leslie G. Stier is the Principal. Mr. Stier is also a member of the Editorial Advisory Board of SCHOOL SHOP. On page 10 of the November, 1941, issue of SCHOOL SHOP appeared another statement by Mr. Stier, entitled "A Suggested Training Policy for Skilled Occupations."

Advisory Committees—Their Functions*

by LESLIE G. STIER

AN effective trade-training program requires the cooperation and participation of educators, employers, and the community. It is a program which requires all groups to unite so that qualified youth may be assured of an opportunity for training and a reasonable opportunity for employment after training.

Function of the School

The function of the school is to *select* qualified youth, *train* them in up-to-date methods, *place* them after training with reliable concerns, and *follow-up* after placement to help make necessary adjustments, as to success and progress, so that eventually youth will develop into craftsmen.

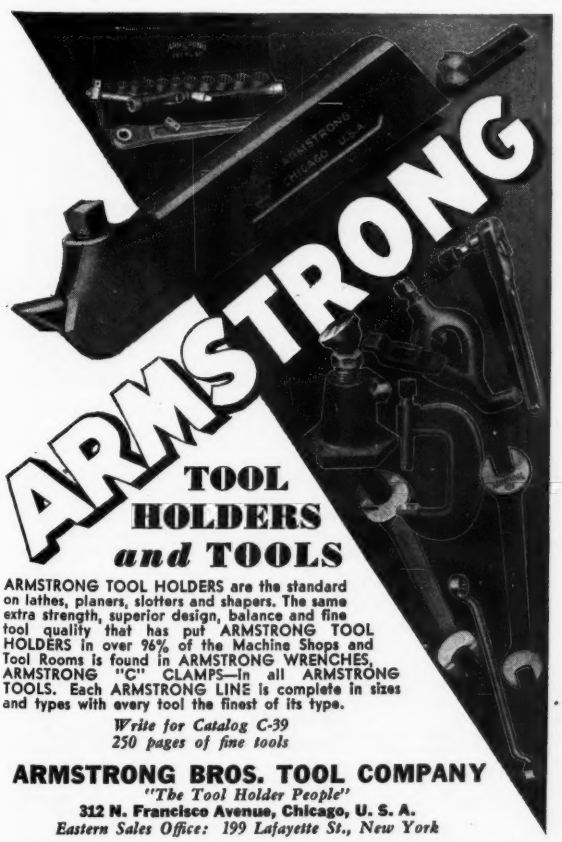
Function of an Advisory Committee

The function of the advisory committee is to act in an advisory capacity without administrative or supervisory responsibility. Trade conditions change rapidly. The school cannot always foresee these changes. A responsible advisory committee, generally composed of five or more members, representing the employer, employee, and educational interests, can help to keep the program dynamic and effective.

Advisory Responsibilities

1. Determine standards for selection of trainees.
2. Recommend content of training program.
3. Help open avenues of employment to those trained.
4. Keep school informed as to changes in the trade.
5. Help predetermine future trends in the trade.
6. Recommend space and equipment needed.
7. Give publicity to the program and secure the cooperation of industry.

The above list of responsibilities may look formidable, but they really require only the best judgment and counsel of the committee. Meetings will be held once a year and at other times when occasion demands on special call. All members are recognized as leaders in their respective fields. Our hope is that by working together on a cooperative basis for the youth, we will help build up the finest industrial community in America; for out of this school should come the industrial craftsmen and leaders of tomorrow.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	High Speed Steel	Cobalt Chrome Alloy	KENNAMETAL
Speed (ft./min.)	70	120	400
Feed (inches)	.0625	.0625	.030
Pieces per Grind	10	25	60
Depth (inches)	1/8	1/8	1/8
Stock Removed (cu. in./min.)	16.40	28.00	45.00

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Mathematics for Woodworkers

Measuring and Listing Materials—A Unit

by WILBUR D. HOPKINS

The listing, ordering, and figuring of the cost of lumber has always been a difficult subject to teach. This unit on the measuring and listing of materials is simply and clearly organized and has worked out most effectively for the author who teaches woodworking at the Schuyler High School, Albany, N. Y.

LUMBER is usually sold today in dressed sizes. In these dressed sizes, all sides and edges have been planed smooth. It is still possible to buy the rough sizes, just as it is sawed, from some large lumber concerns dealing in material used for making cabinets and mill work or from small local mills in rural communities. In some cases cabinet woods are sold with the two surfaces smoothed or surfaced but with the edges left rough. This material is usually listed as S2S, which means surfaced two sides.

Framing material and lumber used in house building is sold, for convenience and standardization, in finish sizes, that is, surfaced on all edges and faces. It is described as S4S.

Woodworkers and lumber dealers always speak of material in its rough sizes. For instance two by fours, which are 2″ thick and 4″ wide before surfacing, actually are 1¾″ x 3¾″ when they reach the job. The ¼″ in thickness and ¼″ in width has been removed in surfacing or smoothing the planks.

Material may be purchased in the following sizes:

STANDARD THICKNESSES

Rough size	*Dressed, surfaced or finish size*
3/8″	¼″
5/8″	½″
½″	3/8″
1″	¾″
1¼″ or 5/4″	1⅛″
2″	1¾″
3″	2¾″
4″	3¾″

STANDARD WIDTHS

The standard widths for lumber are 2″ and wider, up to 12″. Twelve-inch stock is usually higher priced, and over 12″ in width, is special stock and is still higher priced.

EXAMPLES

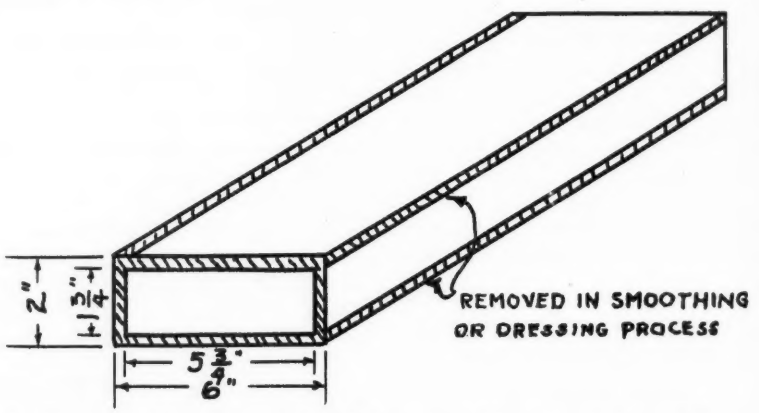
Rough sizes	*Finish sizes*
2″	1⅝″ to 1¾″
4″	3⅝″ to 3¾″
8″	7⅝″ to 7¾″
etc.	etc.

Standard lengths are usually 8′ -0″, 10 -0″, 12′ -0″, 14′ -0″, 16′ -0″. In the case of some imported and rare woods such as lace wood, prima vera, etc., these lengths start at 3′ -0″. Over 16′ -0″ in length is usually special and costs extra.

Notice that lengths are all even and no allowance for surfacing is ever made. Lumber will always be the length as listed or slightly longer.

If the rough sizes are compared with the finish sizes, it will be plain that ⅛″ is taken from each side and face or surface in smoothing or dressing.

Example:



In all cases it should be remembered that material is always listed with the number of pieces first, thickness x width x length next, and the kind of material last.

Example:

3 pc. 1″ x 4″ x 12′-0″ s. k. pine. (The "s. k." means sound knot.)

A list of the materials necessary to do any job in woodworking is known either as a *list of materials* made by carpenters or a *mill bill* made by cabinet makers and mill workers.

Example of Mill Bill:

Name of Part	*No. Pc.*	*Size*			
		Thickness	*Width*	*Length*	*Kind*
Rails	3	¾″	3¾″	21″	Oak

Sample of list of material usually submitted to building supply dealer by contractor for an estimate on the cost of the material:

Job—House for Wm. H. Doe — W. D. Hopkins—*Contractor*

Quantity	*Size*	*Description*	*Price*
45 pcs.	2″ x 10″ x 4′ -0″	First quality fir	
215	2″ x 4″ x 8′ -0″	First quality fir	
2150 sq. ft.	¼″ butt x 8″	Clear cedar beveled siding	
13 squares	18″	Certigrade perfection shingles	
106 lin. ft.	2¾″	Clear pine crown moulding	

Personalities . . .

RALPH NAIR is now on the faculty of the Industrial Education Division, Santa Barbara, Calif., State College. . . . JAMES VOYCE is now supervisor of national defense classes with the Michigan State Board of Control for Vocational Education, Lansing. He is on leave of absence from the Flint, Mich., schools. . . . Dr. KENNETH BEACH, formerly head of the industrial education department of Louisiana State University, has accepted a position with the New York State Department of Education, Albany. . . . H. F. BRICKLEY has obtained leave of absence from his position as director of industrial education in Muncie, Ind., schools, to accept the position of assistant state supervisor of vocational education for national defense for the State of Indiana. . . . Announced last month was the death of BENJAMIN FREY, for 28 years instructor at Milwaukee Vocational School. . . . HARVEY STAUFFER is a new teacher of shop work at Sharon Hill, Pa. . . . F. M. GUTHRIE, for 13 years teacher of industrial arts at Jacksonville-Trimble High School, Athens County, Ohio, has succeeded M. M. Bryson as principal of the school. . . . ARTHUR G. BACKUS, Toledo industrial arts instructor, died in October following a four-month illness. . . . W. G. MCGARVEY, formerly instructor at Brown Vocational School, Wilmington, Del., has been appointed instructor in the transportation laboratory at the State Normal School, Oswego, N.Y. . . . J. O. LOFTIN, former president of Texas College of Arts and Industries, has been made head of San Antonio, Tex., Junior College. . . . ROY E. PATTON has resigned the superintendency of Seiling, Okla., schools to become vocational education supervisor for the Northwest District at Enid. . . . WILBUR HUSTED, formerly at Onekama, Mich., now teaches industrial arts at Three Rivers, Mich. . . . E. H. FUNK, formerly coordinator in Watertown, Wis., vocational school, now has the same duties at Appleton, Wis., vocational school. . . . PAUL ESSERT, formerly principal of Denver, Colo., Opportunity School, has resigned to accept the superintendency of Grosse Pointe, Mich., schools. . . . JOHN A. KUBIAK, formerly coordinator at Wausau, Wis., vocational school, is now on the staff of the Wisconsin State Board.

New American Vocational Association Officers
Elected at Boston Convention

Left—**John J. Seidel, President;** State Director of Vocational Education for Maryland, Baltimore.

Right—**Arthur B. Mays, Vice-President for Industrial Arts Education;** Professor of Industrial Education, University of Illinois.

John A. McCarthy, Vice-President for Industrial Education; Assistant State Commissioner of Education in Charge of Vocational Education, Trenton, N.J., (Photo not available.)

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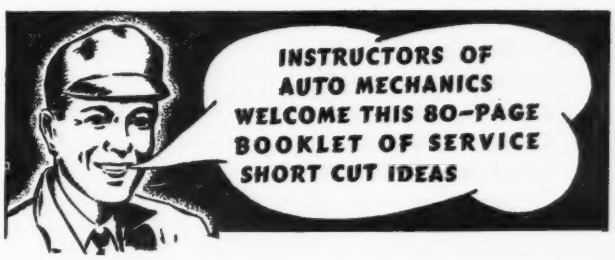

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Washington Letter

by **Alan Murray**

THE haggard look which most magazine editors bear is chiefly due to issuing material which will not be read by subscribers for several weeks. Particularly in times like these, changes come so thick and fast that what is timely at noon may be outdated, incorrect, or even ancient history by three o'clock.

Last month this Letter was written two days before Japan made its inconclusive but horrifying attack on Pearl Harbor. One can easily imagine how different it would have been if written later.

In Washington the scurrying and panting of information men has been painful since the war began. The defense program suddenly became the victory program. Our gigantic government machine turned from preparation for war to waging it on a world-wide scale. Agencies concerned with education took a deep breath and hurriedly tried to adjust themselves to the new condition of the Nation.

The U. S. Office of Education, turning from leisurely peacetime practices (its 521-page volume, *Occupational Information and Guidance Bibliography: 1937-38,* had just come off the press), within 15 days of the first declaration of war organized The U. S. Office of Education Wartime Commission and had it running in high gear.

The spirit of an aroused educational world was expressed by Federal Security Administrator Paul V. McNutt at the meeting in Washington which set up the Wartime Commission, in these words: "Those activities (conflicting educational activities) often originated because the educator didn't move fast enough. American progress hasn't been built by waiting for recognized experts to determine the possible. In times of peace, in boom or depression, society acts to get jobs done.

"Conservative skepticism has its place in the scholarly scheme of things. Educators have shown, in defense, that they can act. And in war speedy decision is even more necessary. This is total war. Whether you like it or not, whether you ever wear a uniform or not, 'you're in the army now.' That—or a Nazi straightjacket later."

● One omission noted in the roster of 33 members appointed to the U. S. Office of Education Wartime Commission is that of anyone exclusively representing industrial arts. Yet four vocational education representatives are members.

In spite of this apparent neglect of one of the most important phases of wartime education, Washington authorities have industrial arts problems and possibilities very much in mind, as indicated in preceding Washington Letters. An announcement is expected shortly from one federal agency about specific ways of implementing industrial arts programs. Describing the value of training which is typified by industrial arts courses, Chairman Elbert D. Thomas of the Senate Committee on Education and Labor said in a formal statement issued shortly after the outbreak of war and broadcast throughout the world:

"The vast majority will and should remain in the schools. Their duty is plain—to spend their days and their nights in preparing themselves as never before for the day when their active services will be needed. It is for them to become a reservoir of unmatched strength to answer the call of the future both of finishing the war and of building the new world which will follow victory."

● The prediction made here in the January issue regarding federalization of State Employment Services came true very quickly. Hastened by the entry of the United States into the war, the move was embodied in an executive order of the President shortly before the beginning of 1942 and is now being carried out. Excellent results are expected from the U. S. Employment Service in the new method of handling the heavy burden of wartime employment, because of the desirability of coordinating the work of former state offices. While some changes of personnel will be made, many former employees in the State Employment Services are being retained in the new set-up.

● Another development induced by the war is the sudden stoppage, at least on the surface, of one of the most spirited controversies of recent times in the field of training—the dispute regarding the place of the Civilian Conservation Corps and the National Youth Administration in the Nation's educational program. A vigorous, no-holds-barred, wrestling match was in the making, with heated denunciations of the motives and intelligence of opponents trembling on the lips of all participants.

But as total war swooped down on the Nation, the whole controversy appeared stilted and academic, even to the most outspoken battlers. As for action, the plan of amalgamation of the two agencies has been temporarily suspended. The probability (at the moment of writing) is that the CCC will be taken over entirely by the War Department for using enrollees in vital construction and maintenance work connected with the war program. The fate of the NYA remains uncertain.

● The National Education Association has been devoting concentrated attention on problems of teacher shortages. The recently created National Commission for the Defense of Democracy Through Education, which is a part of the NEA general organization, has turned its major emphasis from defense of the schools against attack by real estate, tax-saving, and similar groups organized to reduce educational expenditures, to an attempt to be of aid in the war-created teacher shortage problem.

The unfortunate organization of American schools, under which many teachers are so badly underpaid that they quickly shift to better-paying offers in wartime or other fields, has never been brought more vividly to the attention of the nation than in the teacher shortages now appearing.

Industrial arts teachers are among those who have decided not to wait for long-delayed recognition of the importance of their work and who have shifted to positions paying more nearly adequate salaries. It is probable that some federal recognition of the situation is in the offing.

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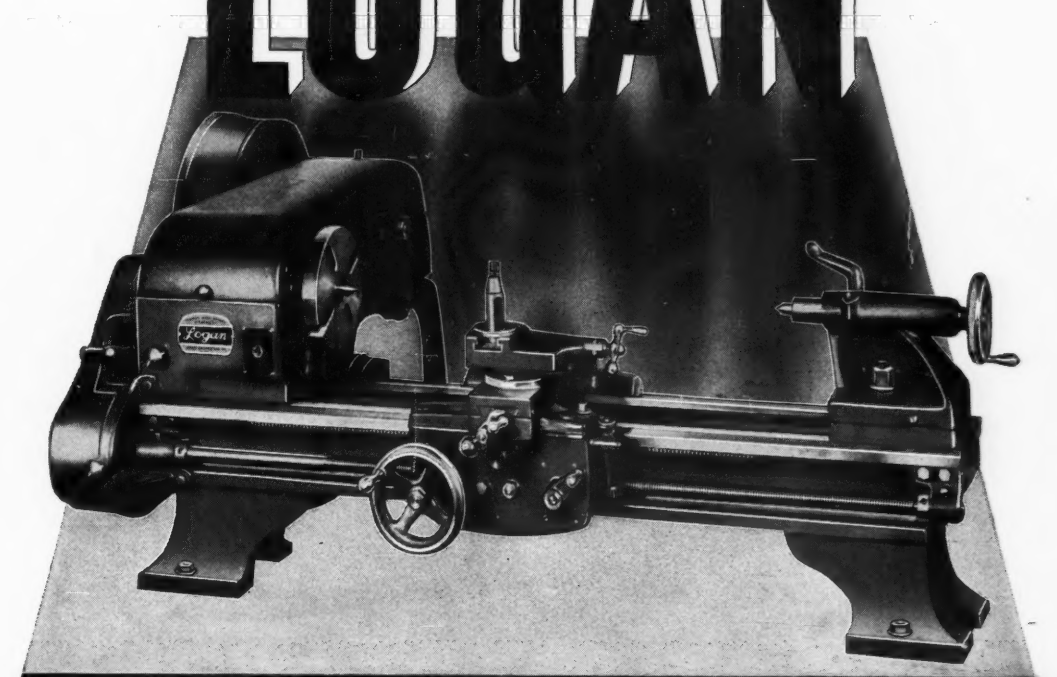

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